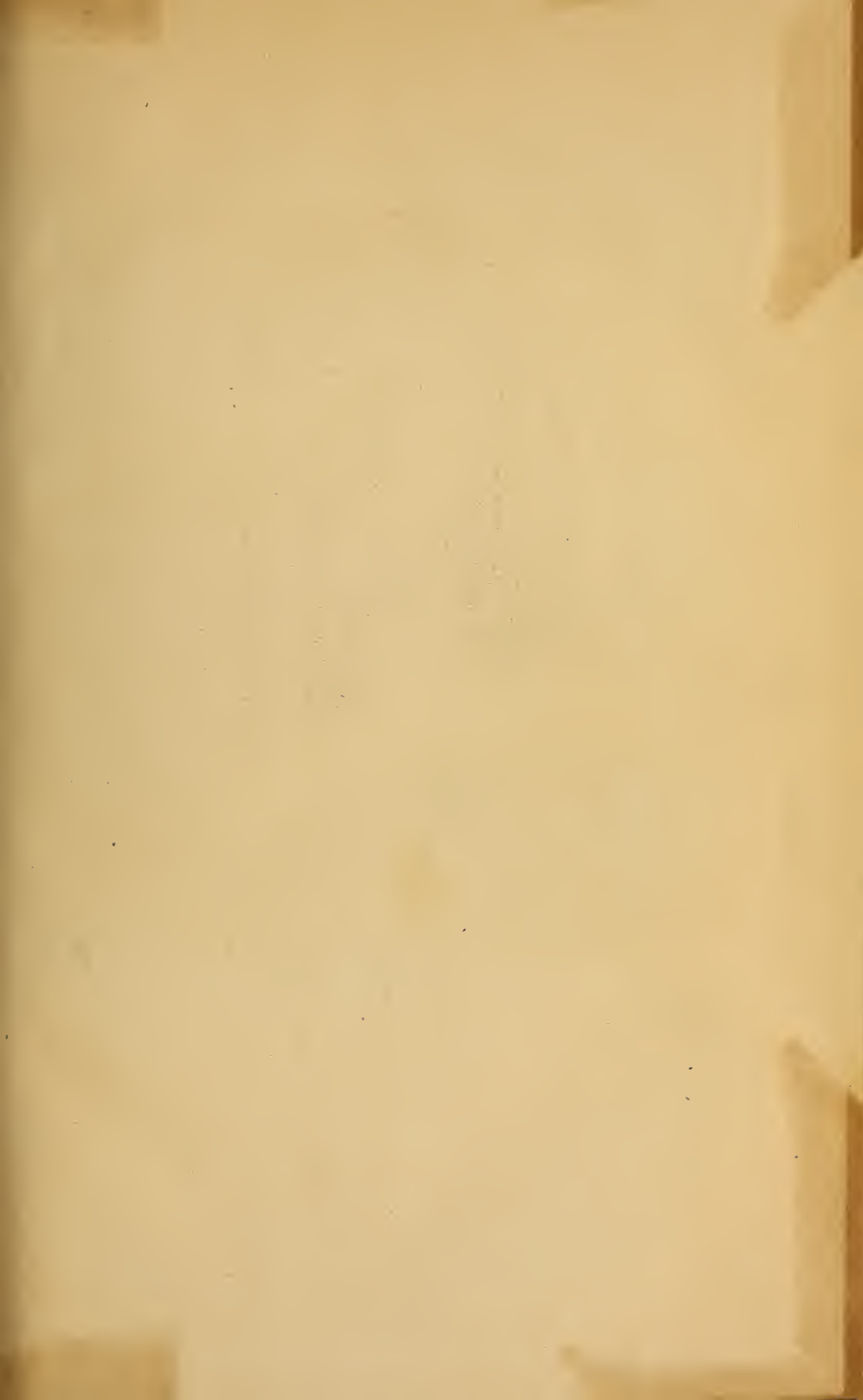




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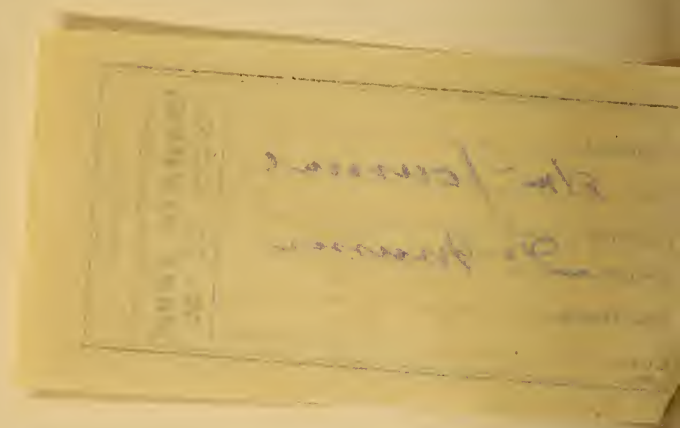




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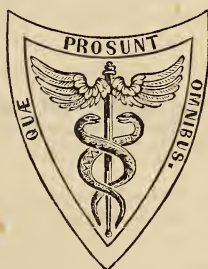
EDITED BY

ISAAC HAYS, M.D.,

FELLOW OF THE PHILADELPHIA COLLEGE OF PHYSICIANS; MEMBER OF THE  
AMERICAN MEDICAL ASSOCIATION; OF THE AMERICAN PHILOSOPHICAL SOCIETY; OF THE  
ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA; ASSOCIATE FELLOW  
OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES,  
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NEW SERIES.

VOL. XXXIII.



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## TO READERS AND CORRESPONDENTS.

THE editor must beg his collaborators to do him the favour of forwarding to him, at their earliest convenience, their communications designed for the next number, as he is about removing his residence, which will disarrange his papers and library and impede his literary labours, and consequently render it necessary to put that number to press at an early period. After the 1st of March next, letters to him should be directed to No. 367 Locust St., near 16th St.

The medical press of our country has been unusually prolific of original works during the past quarter, and several of them are of so important a character as to demand an early and full notice; we have accordingly considerably extended the review department of this number, and shall always do so whenever circumstances seem to call for it. No specific number of pages is assigned to the different departments, but the space accorded to each is regulated by the importance of the matter which is presented.

In our preceding number we inserted a paper "On the Treatment of Delirium Tremens by Chloroform, by W. R. Richardson, M. D., late Assistant Physician in the Hospital, Blackwell Island, New York City." This paper was transmitted to us through a channel which seemed to us to warrant our confidence in its statements.

Since its publication we have received a long paper, entitled "A Reply to Dr. Richardson on Delirium Tremens, by J. W. Barstow, M. D., Resident Physician of Sanford Hall Asylum, Flushing, L. I., and late Assistant Physician of the Penitentiary Hospital, Blackwell's Island, New York City," the tone and language of which, we regret to say, preclude its publication in this journal.

It is sufficient to state that Dr. Barstow represents that he was a member of the late Dr. Wm. Kelly's Medical Staff during fourteen months of his residency in the Penitentiary Hospital; that for four months he had charge of the delirium tremens wards (male) under Dr. K.'s direction; that the cases which Dr. Chamberlain reported, all occurred during his (Dr. Barstow's) term of service on the island; that with most of them he was familiar, and of one or two he had, at times, personally, the charge; and he avers that Dr. Richardson's statements conflict with his experience of the facts.

Justice requires that we should make this statement, and having done so we must decline further discussion of the issue here involved.

The following works have been received:—

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Second Series. Volume the twenty-first. London: Longman, Brown, Green & Longmans, Paternoster Row, 1856. (From the Society.)

On Diseases of the Vesiculæ Seminales and their Associated Organs, with special reference to the Morbid Secretion of the Prostatic and Urethral Mucous Membrane. By MARRIS WILSON, M. D. London: Printed for the Author by Tallant & Allen, 1856. (From the Author.)

On Cystic Entozoa in the Human Kidney. With an Illustrative Case. By T. HERBERT BARKER, M. D., F.R.C.S., etc. London: Hamilton, Adams & Co. Bedford: J. G. Nall, 1856. (From the Author.)

Unique Congenital Malformation Associated with Umbilical Hernia, and a Pendulous Artificial Anus. An Ovarian Tumour, weighing 160 pounds, with Great Elongation of the Cervix Uteri and Vagina. And other contributions to the Seventh Volume of the Transactions of the Pathological Society of London. By GEO. D. GIBB, M. D., F.G.S., &c. &c. London, 1856. (From the Author.)

Obstetrics: the Science and the Art. By CHARLES D. MEIGS, M. D., Professor of Midwifery and the Diseases of Women and Children in Jefferson Medical College, Phila., &c. &c. &c. Philadelphia: Blanchard & Lea, 1856. (From the Publishers.)

The History, Diagnosis, and Treatment of the Fevers of the United States. By ELISHA BARTLETT, M. D., late Professor of Materia Medica and Medical Jurisprudence in the College of Physicians and Surgeons of the University of the State of New York, etc. etc. Fourth edition. Revised by A. CLARK, M. D., etc. Philadelphia: Blanchard & Lea, 1856. (From the Publishers.)

The Practical Anatomist: or, the Student's Guide in the Dissecting-Room. By J. M. ALLEN, M. D., late Professor of Anatomy in the Medical Department of Pennsylvania College, &c. &c. With 266 illustrations. Philadelphia: Blanchard & Lea, 1856. (From the Publishers.)

Medical Notes and Reflections. By Sir HENRY HOLLAND, Bart., M. D., F. R. S., etc. etc., Fellow of the Royal College of Physicians, Physician in Ordinary to the Queen, and Physician in Ordinary to His Royal Highness, Prince Albert. From the third London edition. Philadelphia: Blanchard & Lea, 1857. (From the Publishers.)

An Introduction to Practical Chemistry, including Analysis. By JOHN E. BOWMAN, F. C. S., &c. Second American from the second and revised London edition. Philadelphia: Blanchard & Lea, 1856. (From the Publishers.)

Lectures on the Principles and Methods of Medical Observation and Research. For the use of Advanced Students and Junior Practitioners. By Thomas Laycock, M. D., F. R. S. E., Professor of Practical and Clinical Medicine in the University of Edinburgh, &c. Philadelphia: Blanchard & Lea, 1857. (From the Publishers.)

On the Constitutional Treatment of Female Diseases. By Edward Rigby, M. D., Senior Physician to the General Lying-in Hospital, &c. Philadelphia: Blanchard & Lea, 1857. (From the Publishers.)

A Treatise on the Practice of Surgery. By HENRY H. SMITH, M. D., Professor of the Principles and Practice of Surgery in the University of Pennsylvania, Consulting-Surgeon to the St. Joseph's Hospital, etc. Illustrated by two hundred and seventy-four engravings on wood. Philadelphia: J. B. Lippincott & Co., 1856. (From the Publishers.)

Practical Anatomy. A new arrangement of the London Dissector, with numerous modifications and additions, containing a concise description of the Muscles, Bloodvessels, Nerves, Viscera, and Ligaments of the Human Body, as they appear on Dissection. With illustrations. By D. HAYES AGNEW, M. D., Lecturer on Anatomy and Surgeon to the Philadelphia Hospital (Blockley). Philadelphia: J. B. Lippincott & Co., 1856. (From the Publishers.)

A Guide to the Diseases of the Eye and their Treatment, for the Use of Students and Young Practitioners. By Dr. F. A. VON MOSCHZISKER, Oculist and Aurist, author of "Spectacles, Why and When to Use Them," etc. Baltimore: Cushings & Bailey, 1856. (From the Publishers.)

The Transactions of the American Medical Association. Instituted 1847. Vol. IX. Philadelphia: Printed for the Association by T. K. & P. G. Collins, 1856.

The Transactions of the New Hampshire Medical Society. Held at Concord, June 3 and 4, 1857. Concord, 1856. (From Dr. Geo. H. Hubbard.)

The History and Statistics of Ovariectomy, and the Circumstances under which the Operation may be regarded as Safe and Expedient. Being a Dissertation to which the Prize of the Massachusetts Medical Society was awarded, May, 1856. By GEORGE H. LYMAN, M. D. Boston: Printed by John Wilson & Son, 1856. (From the Author.)

The Sunburnt Appearance of the Skin as an Early Diagnostic Symptom of Supra-Renal Capsule Disease. By ISAAC E. TAYLOR, M. D., Physician to Bellevue Hospital, N. Y. With coloured illustrations. New York, 1856. (From the Author.)

Washington on Assimilation, Consumption, and Scrofula. Louisville, 1856. (From the Author.)

Address Delivered at the Laying of the Corner-Stone of the Insane Hospital at Northampton, Mass. By EDWARD JARVIS, M. D. Northampton, 1856. (From the Author.)

The Unity of Medicine. An Introductory to the Course of Theory and Practice of Medicine in the Medical Department of Pennsylvania College. Delivered October 14, 1850. By ALFRED STILLÉ, M. D. Published by the Class. Philadelphia, 1856. (From the Author.)

The Relation of Drugs to Treatment. An Introductory Lecture before the Medical Class of 1856-57, of Harvard University. By EDWARD H. CLARK, M. D., Professor of Materia Medica. Boston, 1856. (From the Author.)

The Relations of the Medical to the Legal Profession; being the Introductory Address delivered at the Opening of the Fifty-first Session of the College of Physicians and Surgeons of New York, October 20, 1856. By CHANDLER R. GILMAN, M. D., Professor of Obstetrics and of Medical Jurisprudence. Published by request of the Class. New York, 1856. (From the Author.)

The following Journals have been received in exchange:—

Moniteur des Hopitaux. Redacteur en chef, M. H. DE CASTILNAU. Septem-ber, October, November, 1856.

Revue de Thérapeutique Médico-Chirurgicale. Par A. MARTIN-LAUZER. September, October, November, 1856.

Gazette Médicale de Paris. Septémber, October, November, 1856.

Revue Etrangère Médico-Chirurgicale. October, 1856.

Journal de Médecine de Bordeaux. Redacteur en chef, M. CÔSTES. October, November, 1856.

Annales Médico-Psychologiques. Par MM. les Docteurs BAILLARGER, CERISE et MOREAU (de Tours). October, 1856.

Oesterreichische Zeitschrift für Practische Heilkunde. Herausgegeben von Doctoren Collegium der Medicinischen Facultät in Wien. Redigirt von J. J. KNOBZ, M. D., &c. &c., und GEORG PREYSS, M. D., &c. &c. 11 Jahrgang. 1 Quartal. Wien, 1856.

Association Medical Journal. Edited by ANDREW WYNTER, M. D. Septem-ber, October, November, 1856.

The British and Foreign Medico-Chirurgical Review. Oct., 1856.

Edinburgh Medical Journal. September, October, November, 1856.

The Journal of Psychological Medicine and Mental Pathology. Edited by FORBES WINSLOW, M. D., &c. Oct., 1856.

The Dublin Hospital Gazette. September, October, November, 1856.

Medical Times and Gazette. September, October, November, 1856.

Dublin Medical Press. September, October, November, 1856.

The Journal of Public Health and Sanitary Review, including the Transac-tions of the Epidemiological Society of London. Edited by BENJAMIN W. RICH-ARDSON, M. D. Oct., 1856.

The Glasgow Medical Journal. Oct., 1856.

Edinburgh New Philosophical Journal. Editors, T. ANDERSON, M. D., SIR WM. JARDINE, Bart., J. H. BALFOUR, M. D.; for America, H. D. ROGERS, F. R. S. E., etc. October, 1856.

The Dublin Quarterly Journal of Medical Sciences. Nov., 1856.

The Medical Chronicle, or Montreal Monthly Journal of Medicine and Sur-gery. Edited by Drs. WRIGHT and MACCALLUM. October, November, Decem-ber, 1856.

The Medical Examiner. Edited by SAMUEL L. HOLLINGSWORTH, M. D. Octo-ber, November December, 1856.

The New York Journal of Medicine. Edited by Drs. PURPLE, SMITH, and BULKLEY. September, November, 1856.

The Medical Independent. Edited by Drs. GOADBY, KANE, and ROBINSON. September, 1856.

The American Medical Gazette. Edited by D. M. REESE, M. D. October, November, December, 1856.

Buffalo Medical Journal. Edited by SANFORD B. HUNT, M. D. October, No-vember, December, 1856.

Southern Medical and Surgical Journal. Edited by L. A. DUGAS, M. D., and HENRY ROSSIGNOL, M. D. October, November, December, 1856.

Virginia Medical Journal. Edited by Drs. McCaw and OTIS. October, No-vember, December, 1856.

The Cincinnati Medical Observer. Edited by Drs. MENDENHALL, MURPHEY, and STEVENS. October, November, December, 1856.

The Medical and Surgical Reporter. Edited by S. W. BUTLER, M. D. October, December, 1856.

The American Medical Monthly. Edited by E. H. PARKER, M. D. September, October, December, 1856.

Memphis Medical Recorder. Edited by A. P. MERRILL, M. D. September, November, 1856.

The New Hampshire Journal of Medicine. Edited by G. H. HUBBARD, M. D., and N. E. GAGE, M. D. October, November, December, 1856.

The Peninsular Journal of Medicine. Edited by Drs. PITCHER, PALMER, BRODIE, and CHRISTIAN. October, November, 1856.

The American Journal of Dental Science. Edited by C. A. HARRIS, M. D., D. D. S., and A. S. PIGGOT, M. D. October, 1856.

American Journal of Pharmacy. Edited by Wm. PROCTER, Jr. November, 1856.

Charleston Medical Journal and Review. Edited by C. HAPFOLDT, M. D. November, 1856.

The American Journal of Science and Arts. Edited by Professors B. SILLIMAN, B. SILLIMAN, Jr., and J. D. DANA. November, 1856.

The Monthly Stethoscope and Medical Reporter. Edited by G. A. WILSON, M. D., and R. A. LEWIS, M. D. November, December, 1856.

The New York Dental Recorder. Edited by CHARLES W. BALLARD, D. D. S. September, October, 1856.

Atlanta Medical and Surgical Journal. Edited by Drs. LOGAN and WEST-MORELAND. November, December, 1856.

The Ohio Medical and Surgical Journal. Edited by JOHN DAWSON, M. D., and R. GUNDRY, M. D. November, 1856.

Boston Medical and Surgical Journal. Edited W. W. MORLAND and FRANCIS MINOT, M. D. October, November, December, 1856.

The Louisville Review. Edited by S. D. GROSS, M. D., and T. G. RICHARDSON, M. D. November, 1856.

Iowa Medical Journal. Edited by D. L. MCGUGIN, M. D., and J. R. ALLEN, M. D. July, August, 1856.

Nashville Journal of Medicine and Surgery. Edited by W. K. BOWLING, M. D., and PAUL F. EVE, M. D. November, 1856.

The Northwestern Medical and Surgical Journal. Edited by N. S. DAVIS, M. D., and H. A. JOHNSON, M. D. October, November, 1856.

The New Orleans Medical and Surgical Journal. Edited by BENNET DOWLER, M. D. November, 1856.

New Orleans Medical News and Hospital Gazette. Edited by Drs. CHOPPIN, BEARD, and BRICKELL. November, December, 1856.


St. Louis Medical and Surgical Journal. Edited by Drs. M. L. LINTON and W. M. MCPHEETERS. November, 1856.

The Western Lancet. Edited by T. WOOD, M. D., and G. C. BLACKMAN, M. D. December, 1856.

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On the Curative Powers of the Continuous Galvanic Current in Contractions, Palsy, and Atrophy of the Muscles. By Robert Remak, M. D. Extracted from Göschens's German Clinic, No. 35, for August, 1856.	
Sur l'Action Physiologique et Thérapeutique du Courant Galvanique Constant sur les Nerfs et les Muscles de l'Homme. Par M. R. Remak.	
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ART. I.—*Cases of Diseased Gall-Bladder—Suppuration with Enormous Distension—Cancer—Gall-stones, &c., with Remarks.* By WILLIAM PEPPER, M. D., one of the Physicians of the Pennsylvania Hospital.

THE diagnosis of diseases of the gall-bladder is, under all circumstances, attended with considerable difficulty; and, in fact, in most instances nothing but an approximation to the real state of the case can be attained. The chief reason of this, no doubt, may be found in the comparatively unimportant part which this viscus plays in the animal economy—its especial function being merely to retain the bile secreted by the liver until intestinal digestion commences. The cystic bile, it is true, owing to the absorption of its watery particles, is rendered more acrid and viscid, and therefore, perhaps, in this concentrated form, is better qualified to promote primary assimilation, calorification, or whatever function may be assigned to it. Nevertheless it is certain that, in numerous instances, there have been congenital deficiencies of the gall-bladder, or atrophy of the same—as the result of a permanent closure of its duct, from adhesive inflammation, gall-stone, or other cause—without giving rise to any appreciable disturbance of the system. Under the last named circumstances, it has been asserted that the continuous flow of bile into the duodenum tended to stimulate the digestive organs, and thus excite an incessant craving for food, or morbid appetite, such as sometimes attends certain forms of dyspepsia. More accurate observation, however, has refuted these views—so that we cannot even rely upon this symptom as an aid in the diagnosis of the diseases under consideration.

When we bear in mind that the gall-bladder has been found distended with bile, or stuffed with gall-stones, without any intimation of such a condition having existed during life, there is good reason for believing that the

sensibilities of this organ are not very exalted, even under more serious pathological conditions; so that the absence of pain still further tends to embarrass the diagnosis. Nor is there much to be gained, excepting in cases of gall-stones, by inspection of the alvine evacuations, owing to the large extent of alimentary canal through which the morbid products must necessarily pass; and even the detection of such concretions by no means shows that they came from the bladder, since they may have been formed in the hepatic or common duct. The fact, too, that disease of the gall-bladder is generally associated with functional or organic diseases of the liver, forms another obstacle to the accurate investigation of the pathological conditions of the former, which are almost necessarily overlooked in consideration of the greater importance of the latter class of affections. Jaundice, which so commonly attends the diseases of the liver or its ducts, and at once invites attention to the suffering organ, does not manifest itself in diseased conditions of the gall-bladder, excepting in those cases where the liver or its ducts are implicated.

Having thus briefly alluded to some of the most prominent difficulties attendant upon an investigation of the various diseases of the gall-bladder, the writer would state that the following cases are reported, not so much in the expectation that they may tend to elucidate these difficulties, as in the hope that they may induce other observers to pay more attention to this obscure class of affections.

CASE I.—*Enormous Distension of the Gall-bladder by puriform matter—Hepatic Abscess, &c.*—A young man, æt. 26, plumber by trade, entered the hospital, January 7, 1856, complaining of uneasiness in the region of the liver. He stated that last August he had suffered with a severe attack of bilious fever, for which he had been salivated and subjected to other active treatment. From this time the uneasiness in his side gradually increased, but did not incapacitate him from pursuing his work, until about three weeks before his admission. There was now a perceptible fulness and hardness of the right hypochondriac region, with considerable tenderness upon pressure over this part. He was pale and somewhat emaciated, and had hectic fever complicated with slight diarrhœa. The symptoms continued much the same up to the beginning of March, when it was evident that the swelling had increased, and was also more elastic, but still unattended by any manifest fluctuation, œdema, or redness of the skin. The patient presented the sallow paleness of complexion so often seen in cancerous affections, but the conjunctiva was not yellow, nor was there any trace of bile in the urine, or deficiency of it in the discharges from his bowels. With the view of sustaining his strength, he was directed carb. ferri (Vallet) grs. v, three times a day, as also small portions of quinia and elix. vitriol, in connection with a highly nutritious diet; iodine ointment was also applied over the swelling.

By the middle of the month the tumor extended nearly down to the crista of the ilium, and was attended with evident fluctuation. Under these cir-

cumstances it was deemed expedient to use an exploring needle, with the view of ascertaining the character of the fluid; Dr. Peace, the surgeon then on duty, accordingly punctured the swelling about a hand's breadth below the ribs, and at its most prominent point. No fluid escaped, but the needle was stained with blood, which under the microscope presented no unusual appearance. As no bad effects followed this procedure, and as the patient was exceedingly anxious that some more effectual measure should be resorted to for his relief, a small exploring trocar was introduced at the same point. Two or three ounces of thick muco-puriform matter, tinged with bile, flowed through the canula, and was followed by considerable relief of the pain and tension; the improvement was, however, but temporary, and it was evident that a larger aperture would be necessary for the escape of the viscid fluid. From the absence of oedema, or redness of the integuments, there was reason to fear the want of adhesion between the cyst and the abdominal parietes; and, accordingly, it was deemed most prudent to apply the caustic potash in the usual way for promoting such adhesion.

*April 1.* The puncture having entirely healed, the caustic was applied; and was again repeated in a few days after the separation of the first slough. By the 10th of the month, the swelling had become tympanitic on percussion—the line of dulness varying with the position of the patient—and thus clearly showing that the sac contained both gas and fluid; moreover, his strength had rapidly declined, owing to an increase of the diarrhoea. Under such circumstances it was necessary to desist from all further applications, and at the same time endeavour to check the diarrhoea by laudanum enemata. Despite the most powerful stimulants, he gradually failed, and expired on the 19th, about three months and a half after his admission into the hospital.

*Inspection.*—The liver was not enlarged, but in the right lobe were two abscesses, containing together from two to three ounces of thick healthy pus; the rest of its structure was perfectly natural, nor was there any obstruction of the hepatic or common duct. The gall-bladder was greatly distended, and when punctured there was an escape of fetid gas; it also contained about two quarts of thick yellow puriform matter, mixed with shreds of lymph and tinged with bile—resembling the fluid drawn off about three weeks before death. In some parts, its parietes were fully a quarter of an inch thick, and this was particularly the case with that portion which is attached to the liver, whilst the more dependent part was unusually thin and easily lacerated; the mucous membrane throughout was in a sloughy or gangrenous condition. The orifice of the cystic duct was completely occluded by layers of false membrane; but the duct itself, though normal in most respects, was still somewhat dilated. The gall-bladder did not adhere to the abdominal parietes or to any of the adjacent viscera, and the most careful examination failed to detect any gall-stones either in the bladder or ducts. The other organs, as far as examined, were perfectly healthy.

*Remarks.*—The diagnosis in the above case was necessarily obscured by the

imperfect history and advanced stage at which it came under observation. The fact of there being no jaundice, or other evidence of functional disorder of the liver, only proved that the hepatic and common ducts were unobstructed, but certainly could not be relied upon as evidence of a healthy condition of the liver, and thus, by exclusion, lead to the inference that the fluctuating tumour was nothing but a distended gall-bladder; since it is well known that large abscesses or other extensive organic disease of the liver may exist without any appreciable disturbance of its functions. The writer has certainly seen more than half the liver in a state of cancerous degeneration, without any such manifestations—thus rendering it highly probable that the remaining healthy structure of the organ takes on supplementary action. On the other hand, it is equally well understood that a small cancerous mass or abscess pressing upon the ducts, will sometimes arrest the flow of bile, and consequently induce jaundice as effectually as the impaction of a gall-stone.

When an abscess is formed in the right lobe of the liver, and especially when near its convex surface, it is most apt to point, or form a fluctuating tumour, somewhat higher up than in the case under consideration; but no aid in the diagnosis could be formed from the mere locality of the swelling when the abscess occupies the lower surface of the liver; since in reality the tumefaction would occupy much the same locality as that resulting from a distended gall-bladder. It has also been observed that in case of an hepatic abscess, the tumour is at first hard and painful; whilst in a more advanced state, the fluctuation is but illy defined, and generally surrounded by an indurated margin. Moreover, as a general rule, such abscesses have a strong tendency to excite adhesive inflammation with the adjacent parts, and thus ultimately give rise to œdema of the cellular tissue, and finally to redness of the integuments: in all which respects it certainly differs vastly from a mere distension of the gall-bladder, resulting from a retention of bile. But in the case just reported the circumstances were far different; here there was probably from the very commencement, an extensive inflammation of the gall-bladder, giving rise to a painful and indurated tumour, and which only at an advanced stage was attended with central fluctuation. It was nothing but the absence of local œdema and redness which enabled the writer to doubt the existence of an hepatic abscess, and therefore to incline to the opinion that the swelling was rather due to inflammation and suppuration of the gall-bladder. At one time the peculiar cancerous appearance of the patient, in connection with the elastic character of the tumour, led to the opinion that possibly it might be a medullary sarcoma of the liver; the absence, however, of the bosselated feel which this disease generally presents, and finally, the supervention of unequivocal fluctuation, in connection with the previous history, soon dispelled this view of the case.

The constitutional disturbances were of but little aid in the investigation of the local affection; for there was decided hectic fever with rigors, diarrhœa, and in fact the same train of symptoms that attend an hepatic abscess: and,

indeed, it is more than probable that the hectic irritation was in a measure augmented by the secondary abscesses which occupied the right lobe of the liver.

That the diagnosis of enlargement of the gall-bladder is not always unattended by difficulties, even when occurring under more favourable circumstances than the present, is quite manifest from an examination of the records of surgery. Petit alludes to many instances in which it was mistaken for an abscess of the liver; and in one case, had himself commenced to open the supposed abscess, when the swelling suddenly disappeared, owing to the escape of the pent up bile by its natural route. And yet it must be admitted that a correct view of the case is altogether essential before attempting any surgical aid, since the escape of the smallest quantity of the acrid contents of the gall-bladder into the peritoneum would almost necessarily give rise to fatal peritonitis. Owing to the great danger of such an accident, it is now generally conceded that the tumour should not be opened until the inflammation of the integuments leaves but little doubt of adhesions having been previously formed; even under these circumstances, Boyer thinks it most prudent to wait until the external abscess is fully formed. Petit, however, recommends an earlier resort to the operation, provided all other means have failed to afford relief, and that there is good reason to believe that adhesions exist. In doubtful cases, this desirable result should be promoted by the application of caustic over the most prominent part of the swelling, as first recommended by Recamier; or by an incision down to the peritoneum, the wound then being filled with lint, as advised by Bégin in cases of hepatic abscess. With all the above precautions, it must still be admitted that cystotomy of the gall-bladder is not without risk; so much so, indeed, that many prefer waiting for the spontaneous opening of the cyst, or at least until the external abscess is fully declared. In the mean time, it should be remembered that the mischief in the gall-bladder is continuing, and that there is constant danger of its rupturing into the peritoneum; and consequently that it will not do under such circumstances to trust in the forlorn hope of its discharging—as in a few rare instances it has happened—either by the ducts, or through a fistulous opening into the duodenum or colon. For these reasons, in the case under consideration, it was decided not to await any longer the efforts of nature; and it is the opinion of the writer, that had surgical aid been interposed at an earlier period, the result might have been far different.

In a vast majority of instances, inflammation of the gall-bladder depends upon the presence of gall-stones irritating its mucous membrane or obstructing the ducts, and thus giving rise to injurious distension; or this result may be induced by an enlargement of the head of the pancreas pressing upon the common duct; but in the present case no such cause existed. The presumption is that the difficulty here depended upon a twofold cause—a congested condition of the biliary ducts, and a consequent retention of acrid bile in the gall-bladder—direct results of the bilious fever, with which the patient had

suffered at the commencement of his illness. Dr. Budd, in his valuable treatise on diseases of the liver, inclines to the opinion that not only inflammation of the gall-bladder, but also of the duodenum and pyloric extremity of the stomach, frequently depends upon the irritating properties of bile in certain forms of remittent fever; and in confirmation of this view, alludes to Dr. Boyle's dissections in the Walcheren fever, as also to his reports on the fever of Sierra Leone. In regard to the hepatic abscesses, it is highly probable that they were altogether secondary, and dependent upon the diseased condition of the gall-bladder—the inflammation having extended along the small veins, or the ichorous matter having been absorbed from the ulcerated surface. This view also, in a measure, appears to be confirmed by the author just quoted, who reports several cases of suppurative inflammation of the liver from a like cause.

In summing up the above case, the important points of interest appear to be:—

1. Great distension of the gall-bladder by muco-puriform matter tinged with bile, the result in the first instance of a congested condition of the ducts followed by a permanent closure of the cystic orifice from a deposition of false membrane, and entirely disconnected with gall-stones, enlargement of pancreas, or other more common cause of obstruction.

2. As illustrating the fact that such distension in connection with extensive inflammation and final disorganization, could exist for so long a period, without giving rise to adhesions or rupture.

3. The extrication of gas, resulting from the sphacelated condition, and giving rise to resonance on percussion, well calculated to mislead any observer who had not examined the swelling in its earlier stages.

4. The difficulty of diagnosis; depending in the first place upon the resemblance which the tumour in its early stages bore to medullary sarcoma of the liver; and, at a more advanced period, to an hepatic abscess.

5. As showing the importance of not too long deferring surgical aid under similar circumstances, in the vain hope that nature might ultimately afford relief.

CASE II.—*Cancer of the Gall-Bladder and Pancreas.*—A woman, aged about 50, had been subject for several months to severe epigastric pains, attended with more or less vomiting of green bilious matter: at one time the pain in the left side was so severe as to induce the belief that she had pleurisy of that side, for which she had been bled and subjected to other antiphlogistic treatment. In the beginning of June, 1854, there was considerable emaciation, attended with the straw-coloured tint so characteristic of the cancerous diathesis; the bowels were constipated, but there was no deficiency of bile in the alvine discharges, and the urine was pale; nor was there any discoloration of the conjunctiva. The catamenia had ceased for the last five years, but lately there had been considerable leucorrhœal discharge. In the right hypo-

chondriac region, and about midway between the umbilicus and the margin of the ribs, there was an immovable and indurated tumour apparently about the size of the fist, and more or less tender under pressure. Her bowels were kept open by means of laxative enemata, assisted occasionally by a pill composed of rhubarb and ext. colocynth. comp., whilst the irritability of stomach was somewhat controlled by the application of morphia to a vesicated surface over the epigastrium; to relieve her pains, she also took small portions of morphia combined with the extract of hyoscyamus. Her nourishment consisted chiefly of concentrated broth and wine whey; the greater part of which, however, was immediately rejected, mixed with the same green bilious matter which had been discharged throughout her illness. The emaciation rapidly increased, and she expired about one month after coming under my care, and nine months from the commencement of her indisposition.

*Inspection the following day.*—The liver to all appearance was perfectly healthy, nor was there anything abnormal about its ducts; the gall-bladder, however, was converted into an indurated mass, at least four inches long and an inch and a half thick—its increased dimensions depending upon a scirrhus degeneration of its walls. When incised, its different coats presented the same appearance as that which attends scirrhus of the pylorus; its cavity was considerably diminished, and contained a little glairy mucus, without the least trace of bile; and it was with difficulty that the smallest sized probe could be passed through the cystic orifice. The head of the pancreas was enlarged and exceedingly firm, cutting like cartilage; but the rest of the gland appeared healthy. The neck of the uterus was also in a scirrhus state, but not ulcerated; and the ovaries, though atrophied, were in all respects natural; other organs perfectly healthy.

*Remarks.*—Cancer of the gall-bladder, unassociated with a similar degeneration of the liver, is by no means a frequent occurrence; and the writer is not aware of any particular train of symptoms by which such a condition is indicated. In many respects, the case just reported bore a striking resemblance to scirrhus of the pylorus. In the last named disease, it is true that the matter vomited at first consists of a glairy fluid, mixed with alimentary substances in various stages of decomposition; whilst at a later period, and when ulceration has taken place, the contents of the stomach are discoloured by altered blood, and are, therefore, frequently either black or brown; whereas, in the present instance, one of the most prominent symptoms was the incessant bilious vomiting. This peculiarity may in a measure be explained, by the circumstance of the cystic duct being closed, and the bile secreted by the liver necessarily at once transmitted to the duodenum; where, meeting with an obstruction, owing to an enlargement of the head of the pancreas, it was forced through the pyloric orifice into the stomach, and thus excited constant nausea and vomiting. That a certain amount of bile and food must have passed through the duodenum, is evident from the healthy appearance of the evacuations; and yet the obstinate constipation probably depended in a measure upon

the diminished peristaltic action, resulting from a deficient supply of bile and alimentary matter. As a general rule, when the head of the pancreas is much enlarged, it presses more or less upon the common duct, and thus gives rise to jaundice, and in some cases even induces dilatation of the ducts and gall-bladder; no such difficulty, however, could have existed in the present case, as is clearly shown by the absence of all indications of functional disorder of the liver. The bilious vomiting, as before stated, was no evidence of hepatic derangement, but merely the result of regurgitation of healthy bile into the stomach; had the pylorus been obstructed, as is generally the case in scirrhus of this orifice, bilious vomiting could scarcely have occurred, or, at least not to the extent above reported, and which certainly formed one of the most prominent features of the case.

The large size of the tumour and its immobility, also tended to induce the belief that it could not depend upon a mere scirrhus of the pylorus—which is generally movable, and changes its position according as the stomach is in a state of distension or vacuity. In those cases, however, where the pancreas is implicated and adherent to the stomach, the above distinctions are of course valueless. Even under these circumstances, the pancreatic tumour does not generally extend so far into the right hypochondriac region, nor encroach so closely upon the margin of the ribs, as did the swelling in the present case. Whilst then the straw-coloured tint, great emaciation, and in fact all the usual concomitants of the cancerous cachexia fully indicated the malignancy of the abdominal disease, it must at the same time be confessed that neither the general symptoms, nor the results of a careful manual examination, could possibly enable the observer to form a positive diagnosis as to the exact locality of the tumour. For reasons already stated, the writer was induced to believe that it did not depend upon an ordinary scirrhus of the pylorus or pancreas, or even of both these combined; but the peculiarities were alone explained by the examination *post-mortem*. The pain, it is true, was far more intense than that which commonly attends cancer of the stomach or pancreas; but this symptom did not aid in localizing the affection, since in many instances, extensive disease of the gall-bladder has existed with comparatively little suffering.

CASE III.—*Gall-stone of unusual dimensions, simulating Scirrhus of Pylorus.*—A merchant, aged 45, of previous good health, suffered during the winter of 1854, with frequent attacks of vomiting, occasional pains in the bowels, and obstinate constipation. By the following spring he had become exceedingly emaciated, and had constant hectic fever, attended with frequent attacks of diarrhoea. His complexion was sallow, but there was no other indication of biliary derangement; tongue and cheeks covered with aphthæ; ankles œdematous; thirst intense, but total loss of appetite. He also had slight cough and oppression, with dulness of percussion and want of respiratory sound over lower half of right thorax. About two inches to the right of

the middle line, and an inch and a half below the margin of the ribs, there was an oblong tumor deep-seated in the abdomen, but which could be readily grasped between the fingers when the abdominal muscles were relaxed; besides which there were several other indurated masses which could be distinctly traced owing to the attenuated condition of the abdominal parietes: these latter appeared to occupy the small intestine, and closely resembled fecal accumulations. So great was the irritability of stomach that even the smallest portion of either solid or fluid aliment was almost immediately rejected; and an effort was consequently made to sustain his strength by nutritious enemata. Strong iodine ointment was applied over the abdomen; and with the view of allaying the excessive vomiting, he took the remedies usually resorted to under these circumstances—such as tinct. rad. aconite, creasote, hydrocyanic acid, morphia, and finally camphor dissolved in chloroform, but all without any permanent benefit. He expired about three weeks after coming under my notice, and, as near as could be ascertained, some six months from the commencement of his sickness.

*Inspection.*—The tumour felt during life in the pyloric region proved to be a large gall-stone completely filling the bladder and moulded to its shape; the gall-bladder itself, however, was perfectly healthy, as also the liver and its ducts. The surface of the stone was unusually smooth, and of a light yellow colour; it weighed a few grains more than half an ounce, and measured in its greatest circumference two inches, and in length two and a half. It was composed of almost pure cholesterine, and presented a beautiful arrangement of grayish white crystals. Several of the convolutions of the small intestine were agglutinated, whilst their parietes at these points were greatly thickened and evidently in a scirrhus condition; in one or two places they communicated with each other by ulcerated openings; but it was impossible to make a more minute examination of the intestines, owing to their extensive adhesions. Some of the mesenteric glands were enlarged and indurated, but contained no trace of tubercular matter; excepting some softening of the mucous membrane—which was most probably *post-mortem*—the stomach was perfectly healthy. The right pleura contained several quarts of bloody serum, and the lower lobe of the lung was invested with soft false membrane—the substance of the lungs, however, was perfectly healthy. The other organs, as far as examined, were natural.

*Remarks.*—The liver being depressed by the effusion in right pleura, accounts for the unusual locality of the gall-bladder; whilst at the same time the existence of well-marked cancerous cachexia, in connection with constant vomiting, was calculated to induce the belief that the patient was suffering with scirrhus of the pylorus; moreover, as no mention had been made of previous attacks of jaundice or hepatic colic, there was no cause for suspecting that either the liver or gall-bladder was at fault. From the appearance of the stone, there is reason to believe that it must have been formed long anterior to the development of the cancerous affection in the intestines; and yet, although it

completely closed the cystic duct and filled the gall-bladder, it had caused no inflammation or structural change in this viscus. This, no doubt, in a measure was owing to its polished surface, total freedom from angularities, and low specific gravity. Although nothing is more common than to find numerous gall-stones which had been unattended by inflammation, or even any manifestation of their existence during life; yet under such circumstances there has generally been a certain amount of fluid bile in which the concretions were suspended, or at least kept from exercising any injurious pressure upon the walls of the bladder; whereas in the present instance no such protection was afforded; and it is hardly conceivable that a gall-stone of the same bulk as the one reported, but of irregular form and rough surface, could be so long impacted without giving rise to some serious accident. The probable correctness of this view is confirmed by a case which recently came under observation of the writer in consultation with Dr. Yardley. The stone was about the size of a common walnut, of irregular form, rough, and unusually heavy; the result was extensive inflammation of the gall-bladder, followed by an ulcerated opening into the duodenum, through which the stone passed into the intestines, and finally became impacted about four feet above the ileo-colic valve—causing obstinate constipation and vomiting, and resulting in death. The almost sphacelated condition of the gall-bladder must, however, have contributed greatly to the fatal issue; and it is by no means improbable that without this complication, life might have been sustained until the concretion had passed into the colon—it having already traversed some twenty feet of the small intestine. (See *Transact. Col. Phys., Phil.*, 1852, p. 402.)

Another consideration, very naturally suggested by the above case, is the possibility of a biliary calculus of such dimensions escaping by the cystic and common ducts. In numerous instances gall-stones of very large dimensions have been voided, without having been preceded by a train of symptoms such as commonly attend inflammation and ulceration of the gall-bladder; whilst, at other times, they have been discharged from the bowels after protracted attacks of jaundice in connection with a continuous pain or uneasiness in the region of the liver. Under the first named circumstances, it has been supposed that a small calculus may have passed into the intestine, and there by accretion have attained considerable dimensions. Such an occurrence is certainly quite conceivable, but it still lacks the support of accurate observation. On the other hand, examinations after death have revealed adhesions and fistulous communications between the duodenum and gall-bladder in cases where, long antecedent to this event, large gall-stones had been discharged from the bowels, without having been preceded by any symptoms indicative of such alterations. In the second place, or when protracted pain and jaundice have existed, there is every reason to believe that these large concretions have passed through the dilated duct. A lady, recently under the care of the writer, died from cirrhosis in connection with a large gall-stone lodged at the orifice of the common duct; in this instance, the duct behind the obstruc-

tion would readily admit the index finger, and the stone was about the size of a common marble. Cruveilhier makes mention of much greater enlargements of this kind without the presence of any obstructing cause; though at the same time it is quite likely that some such obstruction may have preceded the dilatation. In either case it goes to show the great dilatability of the gall-ducts, and consequently the probability of biliary concretions of very considerable dimensions being occasionally transmitted through them.

In the case which forms the subject of the present remarks, it will be remembered that the stone was completely moulded to the bladder, and that consequently its apex exactly corresponded to the orifice of the cystic duct. Under such favourable circumstances it might be supposed, from what has been already stated, that the duct would necessarily have been more or less dilated—the stone acting as an entering wedge. That such was not the case, may be attributable to the probable circumstance of the contractility of the gall-bladder being destroyed, owing to the distension and compression resulting from so large a calculus. In this connection it may not be uninteresting to allude to the fact that A. Kölliker, in his *Manual of Human Histology*, states that “the gall-bladder has, between its peritoneal covering and the abundant subserous connective tissue, a delicate layer of *muscles*,” so that we must no longer consider it a mere membranous sac. From this new development of its minute structure, it may be readily understood that the gall-bladder may be subject to paralysis from over-distension; or, on the other hand, that its muscular coat may become hypertrophied under partial obstruction of the ducts, precisely as occurs in the urinary bladder in cases of enlarged prostate.

CASE IV.—*Gall-stone obstructing the Pancreatic Duct, causing extensive Disease of the Pancreas, and ending in Death.*—A married lady, aged 45, of small frame but exceedingly obese, was seized during the month of October, 1850, with severe pain in the epigastric region, lasting for several days, and attended by jaundice. Having experienced several similar attacks during the previous year, she supposed it to be gout in the stomach. A few days after, and when apparently convalescent, the pain returned with increased intensity; and I was accordingly called to see her at midnight, in consultation with her physician, Dr. E. Wallace. She was now slightly delirious; pulse frequent; abdomen distended and tender; great thirst, with constant vomiting; pain persistent and intolerable. The various preparations of opium which had been administered, were immediately rejected, and the bowels remained obstinately constipated, notwithstanding the use of large laxative enemata. Under these circumstances, sixty drops of laudanum were given by injection, and at the same time she was directed twenty drops of a solution of camphor in chloroform (camph. ʒj, chloroform ʒij). Some dry cups and a few leeches were applied over the seat of pain, followed by hot fomentations. Under this treatment the pain and vomiting were somewhat relieved, and she was even enabled to retain some nourishment. The following morning, however,

her prostration was extreme, and, notwithstanding the free use of brandy punch, beef-essence, and carbonate of ammonia, she gradually sank, and expired about mid-day, just sixteen hours from the commencement of her last violent seizure.

*Inspection the following day.*—The liver was large and fatty, and its ducts distended with bile; the common duct readily admitted the little finger, and its orifice was obstructed by a gall-stone about the size of a small cherry, which also completely closed up the pancreatic duct. The pancreas was at least three times its natural size; it was also soft and livid, but without gangrenous odour. Some patches of white membraniform matter adhered to the mesentery, and about one pint of pinkish semi-transparent gelatinous matter was contained in the cavity of the pelvis, and interspersed between the convolutions of the intestines; the peritoneum, however, was not injected, nor did it present any appearance of inflammation. Besides the gall-stone above specified, there were fifteen of rather smaller dimensions in the gall-bladder—this latter was distended with bile, but in other respects natural.

*Remarks.*—It is to be regretted that a more minute examination of the pancreas could not have been made, but as it had to be done in haste, and under unfavourable circumstances, a more thorough investigation was impracticable. From the extensive alterations of this organ, it is more than probable that it must have been diseased long before death, and contributed in a great measure to the fatal result. The diagnosis in the various affections of the pancreas is at all times attended with considerable difficulty, and the most that can generally be done is to form an approximative idea as to its real condition. Excessive pain in the epigastric region, fever, tumefaction, pyrosis, slight jaundice, and occasionally salivation, appear to be the most common symptoms attending the acute inflammatory affections; whereas in the more chronic forms of disease, much stress has been laid upon the appearance of a peculiar oleaginous matter in the alvine discharges, depending upon an arrest or diminution of the pancreatic secretion, which, according to the researches of Bernard, is so essential for the assimilation of fatty matters. In the present instance the severe pain, jaundice, and constipation, were fully explained by the obstruction of the common duct; whilst the general distension of the abdomen, in connection with the large amount of fat, made it quite impossible to detect any tumefaction of the pancreas. In regard to the other symptoms, such as salivation, pyrosis, fatty discharges, &c., they did not occur at any time during her previous indisposition, or in her last fatal illness: so that there really was no sufficient reason for suspecting the above serious complication.

The impression of the writer is that the disease of the pancreas was of recent date, and the direct result of the gall-stone obstructing its duct—thus causing distension, congestion, and finally disorganization of the gland. That such pathological conditions might result from mere obstruction, is rendered quite probable from the somewhat analogous condition which occurs in the

mammary gland, when not relieved of its secretion either by the mouth of the child or other mechanical means.

When we recall the intimate relation which exists between the pancreatic and common duct—sometimes running parallel to each other and in direct contact, or the former opening into the latter, or, as is more commonly the case, both opening by a common orifice into the duodenum—in connection with the fact that gall-stones of considerable dimensions are not unfrequently retained for a long period in the excretory duct of the liver, it is not a little surprising that the functional and organic diseases of the pancreas which must necessarily result from these anatomical relations, are so little dwelt upon by systematic writers. On account of the close connection between the head of the pancreas and the excretory duct of the liver, we hear constantly of functional disorders of the latter being induced by enlargement of the former organ; and yet but little mention is made, by most writers on morbid anatomy, of diseases of the pancreas resulting from obstruction of the ductus choledochus by gall-stones or other causes. Rokitsansky admits that the pancreatic duct is occasionally dilated by gall-stones impacted in the common duct, but makes no allusion to other pathological changes which would necessarily result from a long continuation of this cause. As tending to fill this void, the case above reported appears especially entitled to consideration.

In regard to the peculiar gelatinous matter found in the peritoneum—entirely distinct from the ordinary products of inflammation—the impression at time of examination was, that the over-distension of the pancreas had ended in rupture of its duct, or some branch of it, and thus allowed an escape of altered pancreatic fluid. This view was formed from the close resemblance, both as to colour and consistency, between the effusion and the gelatiniform condition of the gland. For reasons already stated, this opinion is altogether problematical, the pancreas not having been subjected to a sufficiently minute examination, nor was the effusion tested either by the microscope or chemical analysis. The mere absence of peritonitis would not militate against the above view, since it is by no means inconceivable that death may have been induced, as sometimes happens in case of perforation of the intestine, even before the ordinary evidences of inflammation could be developed. This is rendered still more probable, when it is remembered that the patient was already exceedingly exhausted by a protracted attack of hepatic colic, which of itself, even when uncomplicated by organic disease, has occasionally proved suddenly fatal. A case of this kind is reported by Dr. Stafford (*Lond. Med. Gaz.*, xlv.), which proved fatal in sixty hours, and was attended only by slight congestion of the liver—thus clearly showing that a fatal result may occasionally be caused by the mere shock to the system caused by the passage of a gall-stone.

ART. II.—*Military Surgery and Operations following the Battle of Rivas, Nicaragua, April, 1856.* By I. MOSES, M. D., late Surgeon-General of the Nicaraguan Army.

AN interesting addition to the records of military surgery has been but recently made on our own continent, and in a country to which the eyes of all nations, and especially of Americans, have been turned with eager interest.

The States of Central America, occupying the isthmus between Mexico and the republics of South America, have within the last few years, since the establishment of our immense national interests on the Pacific, attracted the attention of the world. Through them has rushed a tide of population, from the east towards the west, unequalled in the annals of history; which has founded, in the short period of eight years, a State with cities rivalling, in beauty, wealth, and architectural adornment, our oldest Atlantic towns; opened a market for the commerce of the world; and sent back over this same isthmus, in return, not less than three hundred millions of money. Yet, during the same period, this great highway of nations, peopled by a degenerate mongrel race, torn by civil wars and sunken in barbarism and superstition, has hardly felt the influence which has given an impetus to the whole civilized world.

Little over a year since, a new element was introduced into the army of the democratic party of Nicaragua, which rapidly gave it the ascendancy. Invited by the new government to take charge of the medical department of the army, now composed of native and American troops, I arrived at Granada, Nicaragua, in February last, and was honoured with the commission of Surgeon-General. No cases of surgical interest occurred until after the battle of Rivas, which was fought on the 11th of April, and lasted about fourteen hours. Small arms were only used—muskets, rifles, and revolvers on the one side, and Minié muskets on the other. A small piece of artillery was taken from the enemy early in the morning, which had been discharged but once; but no wound appeared to have been made by grape and canister, with which it was loaded. The action on both sides was of a desultory character; brisk at first; repelling charges, and sharp shooting from loop-holes. After a forced march of about seventy or eighty miles, with irregular and sparse rations, an annoying fight, without food for thirty hours, it was deemed advisable by the general to retreat, which was safely effected at 2 o'clock next morning. The wounded received their primary dressing during the engagement, and were made tolerably comfortable in a safe place. From the fact of no artillery being used, none of those terrible wounds were received requiring operative interference during the day. About sunset the wounded, amounting to fifty-five, though many of a trivial nature, were removed to the church for safety; and, on the retreat, those who could not walk

were mounted on mules and horses. Some five or six, who could not possibly be removed, were abandoned, and next day bayoneted by the enemy. No litters were on hand, in consequence of the rapidity of our movements and want of means of transportation, and the roads do not admit of the passage of light wagons or ambulances. The wounded did well, and were again dressed and made comfortable at Irandime, thirty-six hours after the battle. They arrived at Granada on the evening of the fourteenth, and were placed in hospital.

In the encounter there were about four hundred and twenty Americans, with one hundred and sixty natives, in the Nicaraguan army, opposed to nearly three thousand Costa Ricans. The official returns reported on our side were: killed and missing, sixty-one, of whom many subsequently reported themselves; wounded, fifty-five, of whom five or six were unable to be removed, and forty-six were sufficiently severe to require surgical attendance. Of these there were twelve officers, and thirty-four non-commissioned officers, privates, and citizen volunteers.

There were wounds of the head and neck . . .	10
“ “ “ arms and hands . . .	12
“ “ “ chest . . .	7
“ “ “ thigh and leg . . .	17
Total . . .	46

Of which twelve required operative proceedings, viz:—

Exsection of balls . . . . .	6
Amputation of forearm . . . . .	4
“ “ arm . . . . .	1
Ligation of left subelavian artery . . . . .	1
Total . . . . .	12

As several of the above cases present points interesting to the military surgeon, I propose giving a short outline of some of the more important.

CASE I.—Lieut. Potter received a Minié ball about the middle of the left arm, fracturing the humerus and coursing towards the shoulder, from which I extracted it after our arrival at Granada. Wishing to save the arm, and no bad symptoms appearing, it was placed on a pillow for a week. Considerable swelling of the entire limb supervened, with general irritability and discharge of unhealthy looking pus, and amputation was proposed as giving him the best chance. On the morning of the 26th, a fortnight after the receipt of the wound, febrile symptoms of an active character set in, and yellow fever developed itself, with coma, low muttering delirium, refusal to take medicine or nourishment, and black vomit, which terminated the case in a few hours.

Fevers of a malarial character were prevalent, and yellow fever, in the form of a mild epidemic, existed. Unfortunately, the wounded were placed in the same hospital with the fever cases; but most perfect ventilation, abundant accommodations, and strict police existed. I regretted not having amputated

the arm. The bone was comminuted, the soft parts lacerated and contused, but no nerves nor bloodvessels injured. Experience had taught me, and this case has confirmed me in my previous opinion, that in gunshot wounds in which the bone or bones are fractured and comminuted, as is especially the case where the projectile is from the Minié arm, whether rifle or musket, amputation should be resorted to.

CASE II.—Maj. Markham, during a charge, was struck by a ball on the inside, and a little above the patella, so as to involve the cavity of the knee-joint, and the synovial fluid was oozing out when I saw him, very shortly after. He rode on horseback during the retreat, but complained of a sense of weight and stiffness more than pain. On arrival at Granada, he was comfortably placed in private quarters; the most absolute rest and abstemiousness were enjoined, and cold dressings applied. He recovered entirely, without any particular inflammation of the joint, and with free motion. His happy recovery may be attributed to his strict observance of rest, an almost starving diet, and his excellent condition for bearing wounds, being a thin, wiry person, of placid temper and gay disposition.

CASE III.—Capt. Casey, in the same charge, received a Minié musket-ball through the left wrist, shattering the lower portion of the radius and carpal bones. His wound was dressed, his arm placed in a sling, and he arrived at Granada comfortably, where I amputated at the middle of the forearm. Four days after, he was walking about, and the stump healed most kindly.

CASE IV.—Capt. Cook, Quartermaster, wounded in the same charge, the ball entering the left shoulder in front, inside of and below the acromial articulation of the clavicle, taking a course downward, backward, and inward, and was felt just below the inferior angle of the scapula, whence I extracted it the day after our arrival at Granada (14th). He rode, without much inconvenience, on horseback from Rivas, and was comfortably quartered in the house of a native family, from whom he received every care and attention. Of a nervous and irritable temperament, it was impossible to keep him quiet during the day or night; he insisted upon sitting up and walking about the room, although he was repeatedly warned of his extreme danger. He continued to do well, however, until the morning of the 21st, when, while sitting up in a chair to be dressed, violent hemorrhage took place, and he lost a large quantity of blood before it was checked; and, on my arrival, I found him very feeble. Believing that the slough in the course of the ball had made an opening into the axillary artery just after its passage out of the chest, I informed the patient that his only hope was ligation of the artery, to which he readily assented, and I immediately ligated the subclavian at the middle, or very near the first space, it being necessary to apply pressure over the first rib. No hemorrhage recurred, but he soon began to sink, became delirious and restless, his respiration very slow and laboured, and he died at 4 P. M. of the 24th, about *seventy-nine* hours after the operation.

Twenty-four hours previously to death, the shoulder and arm became livid and oedematous. He was fed with stimulants, but, deglutition being difficult, and no prospect of recovery, he was made as comfortable as possible until the final issue.

I regret that circumstances did not permit an examination of the parts.

CASE V.—Adjutant Britman, 2d Rifles, received a Minié musket ball in the left arm, in the upper third, while firing his piece; the ball passing behind the shoulder, along the ribs, and through the scapula, lodging near the inferior angle, from which I removed it after our arrival in Granada. His symptoms promised a good recovery for forty-eight hours, when tetanus set in, with severe spasm of the muscles of the face and trunk, and he sunk twenty-four hours after. He had ridden from Rivas without inconvenience; his wounds looked well; no vessels or nerves were involved, and his habits and health had always been good. Brandy, assafoetida, and opium in large doses were administered, but without effect.

CASE VI.—Lt. Jones received a ball in the left hip, which entered below the trochanter, and buried itself deeply in the fleshy part of the nates, where it could not be detected by a probe. He was able to move his thigh perfectly, and without pain; he slept well, and was in good condition until the 23d, when the fever, which was prevalent, set in, assumed a typhoid character, and he died on the evening of the 25th with delirium. He was in a separate apartment, surrounded with every care and attention, and fell a victim to the epidemic, which has carried off many a brave man in this city.

CASE VII.—Capt. Armstrong received a ball on the outside of the right leg, which passed through the leg, and lodged beneath the integuments on the inside, from which I removed it ten days after the battle. Wound did well, and rapidly healed.

CASE VIII.—Sergt. Sarsfield received a wound in the throat, the ball entering just above the articulation of the left clavicle with the sternum, passing directly backward, wounding the trachea and œsophagus, and lodging in the anterior muscles of the spine. He rode on horseback from Rivas to Granada, and was perfectly comfortable, and surrounded by the most assiduous attentions from a native family. The wound was of the size of a dime, through which liquids flowed when he drank, a part only passing into the stomach, mixed with the air as he respired. His voice was a mere whisper. So severe a wound in so important a region called for the most unremitting watchfulness, which he received. The most absolute repose was enjoined, and the most simple articles of diet. The wound progressed well; the slough separated, and there was a discharge of healthy pus, the aperture becoming large but granulating. Cough was the only annoying symptom.

May 3. Up to the present date he has continued to do well; his strength is much diminished in consequence of his strict diet. Contraction has taken place in the œsophagus, and less fluid passes through it. For the last few days he has been supported by enemata of beef-soup, sago with wine, and baths of aquadiente. His cough has been quite troublesome, for which anodynes were given. Hemorrhage, which has been most anxiously feared, began this morning, darkening the ray of hope which I had of his recovery, not a bad symptom having arisen until this morning, the *twenty-third* day. No operative interference could be resorted to, and we could only apply some compressed sponge.

6th. Hemorrhage has continued from time to time through the wound, from the nose, and spread beneath the coverings of the neck. Last night he became delirious, and died to-day at 5 P. M.

CASE IX.—Finney, citizen volunteer, received a ball in the left shoulder, which lodged beneath the pectoral muscle below the clavicle, from which I

removed it three weeks after the battle. The ball was of iron, and of very large size. He recovered rapidly.

CASE X.—Capt. McArdle, while serving a piece of artillery taken from the enemy, was struck by a musket ball in the left forearm, producing considerable destruction of the tendinous tissues; and comminuting the ulna near the joint. Although the wound called for immediate amputation, he was so unwilling that the operation was postponed, and no untoward symptom occurred until the thirteenth day, when suddenly violent arterial hemorrhage came on, and the arm was immediately amputated about the middle, where the bifurcation of the brachial artery was found. The stump did admirably, and in a few days he was up and about.

CASE XI.—McPall, of the Rangers, received a shot, the ball striking the inferior maxilla on the right side, fracturing the bone, and passing obliquely through the neck, and out posteriorly on the left side about an inch from the spines of the vertebræ, without any evidence of serious injury to the internal parts. He slept well, eat well, and walked about for ten days, when suddenly, while sitting at the window, profuse hemorrhage came on, and blood in large quantities was poured from the mouth and into the lungs, and in five minutes he was dead.

It is difficult to understand how a ball should have taken such a course without tearing vessels, nerves, and organs essential to deglutition and respiration, yet so capriciously do they turn aside and alter their position when they have lost momentum, that we may explain in this case the total absence of serious injury until within a few minutes of the fatal termination of the case. I saw the patient certainly within three minutes of his attack, when pressure was made upon the common carotid, the internal being no doubt the source of the hemorrhage, hoping to moderate the flow and enable me to ligate the vessel; but death was too rapid for surgical art to avail.

CASE XII.—Private Hutchins, while in the act of firing, received a Minié ball, which passed through the left wrist and under the right arm, tearing the soft parts very much, and making a very ragged wound. Under simple dressings both wounds did well, that in the right axilla healing almost completely; but on the fourteenth day after the battle the wrist became very painful, with general constitutional irritability and febrile symptoms; the wound looked foul, and the hand white and pasty.

On consultation it was determined to amputate, and I took off the forearm at the junction of the upper and middle third. Next day he was quiet; had rested well; the febrile movement less marked, and expressing himself very comfortable, and rejoiced to get rid of the hand.

*May 2.* Is now doing very well, and stump healing.

*10th.* In consequence of some imprudence, fever again appeared, but not of an alarming character, but on the 8th he was reported to me as being worse, and on visiting him with the medical officer in whose charge he was, I found delirium, subsultus tendinum, and great prostration of the nervous energy, and he died delirious the same night.

On examination of the parts, the flaps were adherent throughout, the bone rounded off, and the stump in fine condition.

CASE XIII.—Private Lott received a glancing shot sideways, which fractured the lower jaw of the right side an inch and a half anterior to the angle, and tore the soft parts, leaving a large ragged wound. When the wound had nearly healed he was attacked with yellow fever, and died with *black vomit*.

CASE XIV.—Sergt. Pittman was struck by a Minié ball in the upper third of the left arm, comminuting the bone, which was followed by effusion, which in a few days produced great pain, general constitutional disturbance, and a disposition to great nervous prostration. He rode on horseback from Rivas, and the day after our arrival, the symptoms not promising more favourably, I amputated high up. He passed that night and next day more comfortably, and recovered with a good stump.

CASE XV.—Sergt. Dunnigan was struck by a ball sideways, which cut away in a very clean manner, half an inch in width, the soft tissues opposite the crico-thyroid articulation, but not wounding the larynx. He immediately lost his voice, not being able to articulate louder than in a whisper, and had some difficulty in respiration. He could not swallow solid food for some days, but all the parts healed kindly, and recovery was perfect.

In connection with the above, I would note a case of gunshot wound of the larynx occurring in 1849, showing how much destruction and injury may be done to these parts, and recovery follow. While crossing the plains near Fort Boisé, a corporal of H Co. Rifles was accidentally shot by a fellow soldier at not more than forty yards distance with a conical ball, which tore away the soft parts extensively, fractured the os hyoides, thyroid, and cricoid cartilages, and opening a large hiatus in the laryngeal cavity. The distressing dyspnoea, and other urgent symptoms, induced me to declare the wound mortal, but as we were on march, a canvas tent fly was stretched in a wagon, so as to make him as comfortable as possible. The wound was cleansed, spicula of bone removed, the parts replaced and adapted as well as could be, and cold water applied. Being unable to swallow, his mouth was moistened with water; a hospital steward placed in the wagon to attend to his wants, and we proceeded on our journey. He did not particularly complain during the march, except of heat and dust, and to my surprise I found him in good spirits and hopeful when we halted for the night. It will be sufficient to say that he finally recovered at Oregon City, with an opening in the larynx, and entire loss of voice. He made the journey of about four hundred miles in a wagon, over a dusty road for the most part; but great care was given to the examination and dressing of the wound. Unfavourable symptoms, presenting two or three times during his recovery, were promptly and successfully met. It has been my fortune to have seen several most interesting wounds and injuries about the throat and vocal apparatus, and, except where the large bloodvessels were involved, they have all done well.

CASE XVI.—Private Mayer was struck by a small rifle ball in front of the ear, which passed through the cartilages, and lodged behind the mastoid process, from which I removed it a few minutes after he was wounded; applied a light bandage, and he continued fighting during the day.

CASE XVII.—Captain Bradly received a small wound just beneath the angle of the jaw on the left side, and applied to have some foreign body removed. On examination, a small piece of metal was found and removed, which proved to be a portion of a small bell. It appears that while in the church, near the altar, a ball struck one of the ornaments, sending the fragments in all directions, one of which had buried itself in his neck.

Of the forty-six cases of which I have notes, there are many of great interest to the military surgeon, showing the course of balls; the wonderful escape of large vessels and nerves; the extent of the reparative process, and how often the severest wounds get well, while the most trifling are the cause of sudden death. Yet, I do not propose, at the present time, to relate them. The hospital, in which the wounded were placed on our arrival in Granada, was a large house, used for governmental purposes, near the Spanish régime, having, inside and outside, along the corridors, sufficient space; it was well ventilated, and kept in good police. The beds were such as are used in the country, with a hide firmly stretched between the side pieces, rather hard to those accustomed to the luxury of mattresses or feather beds, but admirably adapted to warm climates. Bedsacks filled with dry soft grass and good bedding were furnished to the majority, making them very comfortable. It was greatly to be regretted that the wounded were obliged to occupy the same building with fever cases; but, as soon as circumstances permitted, a separate and distinct house was procured as a fever hospital, to which they were removed; the first hospital being whitewashed, cleaned, and occupied solely by surgical cases. All this, however, could not be effected before there were victims.

Death occurred from secondary hemorrhages in 3 cases.

"	"	"	tetanus	" 1 case.
"	"	"	fever	" 4 cases.

Among the last, Hutchins, whose hand had been amputated, being the only death among those operated on.

Notwithstanding many depressing circumstances, hot climate and inappropriate hospital diet, no wounds could more rapidly and happily have got well.

From the earliest dressing, cold water was used universally by the officers of the staff who devoted themselves night and day to the care of the wounded, who were never left without one ready in case of accidental symptoms. Yet here, I regret to say, as in other services, no acknowledgment was ever made to those who shared the same dangers in the field with those rewarded by military honours, and whose most toilsome duties were continued for weeks after, while their companions were resting on their newly acquired rank.

I have ever been opposed to the use of poultices as uncertain and offensive applications. To be of use, they should be at least half an inch thick, and changed every three hours. This is often wearisome to the patient, requires the movement of a limb or part which should be kept quiet, and produces an irritability and dread on the part of the patient. It is frequently impossible

to prevent the bed from being soiled by the poultice slipping. All this may be avoided by water-dressings; if cold be most grateful, by a folded linen cloth dipped in water and laid loosely over the part, or kept moist and cool by a drip from a vessel suspended above; if warm be preferred, by covering the wet cloth with oil silk, it soon acquires the temperature of the part and becomes a light and elegant poultice. Various medicinal agents may be thus applied of a sedative or stimulating character.

This dressing is the more applicable in tropical regions, where it is desirable to keep the wounded cool and clean. The months of April and May, in Granada, are the warmest of the summer season, being at the end of the dry period. The climate of Granada is warm throughout the year; the nights pleasant enough for refreshing sleep.

Observations made with the barometer and thermometer during the month of April, showed as follows:—

		7 A. M.	2 P. M.	9 P. M.
Monthly mean.	Barometer . . .	29.89	29.85	29.90
	Attached thermometer .	80.9	91.7	83.
	Thermometer in open air .	80.4	91.1	82.6

The air mostly dry; no rain falling; the sky clear; the wind light and constant from the east. This wind prevailed during nearly six months of the year, and blowing over an extensive swampy region lying to the N. E. of the city, is the source of the malarial fevers which prevail during the summer and autumnal months. During the rainy season, which is perfectly delightful, the prevailing wind is from the W. and S. W.; the rain falling in short and heavy showers in the afternoon and night, often accompanied by heavy thunder and vivid lightnings. It is during these months, from June to November, that Nature adorns the land with her garb of most luxuriant foliage, when the fields of corn and sugar-cane wave most gracefully in the breezes, laden with rich perfume from the orange and gorgeous flowering productions of the land. To enjoy nature in perfection, to realize our sweetest fancies, it is necessary to dwell in the tropics, where trees never know the age of the "sere and yellow leaf," and the fields ever retain their brilliant verdure; where cloudy skies and chilling winds are never felt; where a glowing sun, bright blue sky, and a luxuriant and varied foliage ever smile. Such is the climate of Nicaragua, varying in its different parts to suit the cooler fancies and more material tastes of business men. The city of Granada, on the border of the lake of Nicaragua, is the only unhealthy locality in the State, arising from the causes above related, but comparing favourable with most of our Southern cities. But it is not my intention, at present, to enter in a detail of the climatology and productions of the State.

Gunshot wounds, so rarely presented to the surgeon in civil practice, afford the army surgeon a specialty of great interest, especially when occurring in numbers, where he himself is a witness of them, and has them under his special notice from the time of infliction to their termination in recovery or death.

The miraculous relations of old writers as to effect of windage, spent balls, &c., has been long proved to be fabulous in many of their details, while the introduction of new and more destructive weapons offer a newer and more interesting field of observation, and a class of injuries rarely or never seen, except after a battle.

The introduction of the Minié musket and rifle has created an almost entirely new class of gunshot wounds, remarkable for the distance at which they strike; the great destruction of soft parts; the complete comminution of the bones struck; the greater tendency to secondary hemorrhage, and greater urgency for amputations. Following such wounds is a greater amount of constitutional disturbance; higher degree of inflammatory action; more profuse purulent discharge, and a much more protracted period of recovery; calling on the surgeon for a more patient and devoted attention to his cases and the exercise of a careful and experienced judgment in his proceedings. This class hold an intermediate place between the ordinary wounds of small arms and those produced by artillery, and a full knowledge of both must guide the surgeon in the middle course.

The weight of opinion among British and French Army Surgeons is in favour of immediate or primary operations in all cases requiring surgical interference; but regard must be had to the circumstances in each particular contingency; to the convenience of place, and, to some extent, the anticipated result of the battle during which the wounds are inflicted; but this subject has been so ably discussed by those far more experienced and capable than myself, I do not offer even a concurring assent. Conservative surgery has taught us so much, however, during the last few years as to the power of saving whole limbs by the exsection of joints, that we may, under the most favourable circumstances, preserve for our patients important members which our teachers, not long since, would have condemned to the knife. To the records of the late European campaign, and the experience arising from so vast and instructive a school, we most respectfully look for our most instructive lessons.

In a subsequent paper, I propose to give a short account of the topography and climatology of the State, and the prevailing diseases among strangers and the native population, and the influence of *tropical climates generally* upon Europeans. Long since, I had doubts of what is termed "acclimation;" but personal experience, confirmed by that of several highly intelligent medical men, has taught me that it is rare. Individuals may accommodate themselves to the habits of a people, and even enjoy a good degree of health; but, both physically and mentally, they degenerate.

The active and exposed duties of the soldier, however, rapidly tell upon his effectiveness. I have seen troops in Texas, where military service has been severe, exercise on scouts and guard, under the influence of a tropical heat, actually wilt down, and for months remain feeble, pallid, and dejected. Such, too, has been the experience of the army surgeons in Florida. To keep

troops for a series of years in such a climate, with the idea that they will become inured and insusceptible to its influences, is an egregious fallacy. The same remarks apply equally to females and children, inducing, among the first, obstinate forms of uterine and vaginal diseases; and, in the latter, convulsions, diseases of the stomach and bowels, and even paralytic affections.

But, with these preliminary remarks, which are made rather to suggest thought upon the subject among those having opportunity of observation, I will close my paper, trusting to a more able pen for further teaching upon so interesting a topic.

NEW YORK, *September*, 1856.

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ART. III.—*Case of Exostosis occupying the Orbit and Nasal Cavity, successfully removed, and Vision restored.* By ALEXANDER B. MOTT, M. D., Surgeon to "St. Vincent's Hospital," and the "Jews' Hospital in New York," &c. &c. (With a Plate.)

TUMOURS in the orbit, combined with exostosis, have long been familiar to every surgeon of experience. Sir Astley Cooper, in his *Surgical Essays* (part i. p. 157), in the earlier part of the century excited considerable attention by the narrative of one which proved fatal in consequence of making its way through the orbital process of the os frontis to the brain; and Mr. Guthrie, the celebrated English military surgeon who has lately been removed from the world of science, records others which especially attracted his notice. One of these, however, was on a very small scale, not exceeding in dimension the size of a large marble, a point at which it seems to have remained stationary; while a second, of larger growth, effectually resisted the application of the actual cautery, which seems to have been the only mode of treatment that suggested itself to the practitioner. On the continent of Europe we find numerous cases detailed by Brasant, Langenbeck and others in the various scientific journals of France and Germany, all of which were accompanied by more or less displacement of the eye. But I am not aware of any so extensive as that which fell under my observation in the following instance; and though Mr. Guthrie, on finding the cautery fail, afterwards proposed the use of the saw and chisel, I believe my operation will be found original.

The patient, William Hoy, aged thirty-three, a native of Edinburgh, Scotland, and a wood-turner by trade, had about seven years previous to his applying to me for advice, noticed an enlargement towards the inner canthus of the left eye. His previous health had been good, though he had been subject to headache, and his attention was first drawn to the seat of disease by inflammation around the part, and a troublesome flow of tears over the cheek. About eighteen months after he first noticed the tumour, the left

nostril was closed up, and he then applied for relief to a surgeon of Edinburgh, who passed a probe up that cavity; but the only effect of this was to excite great pain in the head and produce an extensive swelling on the side of the face. Professor Syme next examined it, but proposed no operation. At this time the tumour did not occupy the socket of the eye; but it gradually increased in size, pressing that organ to the outer canthus and impairing its vision. Nothing, however, appears to have been done; and, in this condition he progressively went on from bad to worse until, having in the interval emigrated to this country, he applied for my advice and assistance in the month of April, 1854. About two months previously, a discharge of bloody matter had taken place from the left nostril, and continued to a considerable extent night and day subsequently. The pain in the head had also become very violent, and prevented him from attending to his work. About a month after the discharge from the nostril the eyelids became swollen, and an abscess formed under the lower lid, towards the inner canthus. On passing a probe through this opening, the bone could be distinctly felt, and its existence in the nostril was also equally evident.

It was on the 11th of April that he first applied to me, and on examination I concluded that the disease was a case of exostosis occupying the left nasal cavity and orbital foramen. The extent of the growth of bone could not be felt, but, from the duration of the malady I inferred that it penetrated far into the socket and was firmly attached to the orbital plates. I informed the patient that in my opinion nothing but an operation would afford him relief, and that it was an operation which might involve his life. I considered it my duty also to apprise him that it was impossible to predicate a successful result, as the extent of the disease could not be ascertained; but he was suffering so much at the time that he expressed his resolution to run the risk and have it performed. As he was living in a boarding-house, where it was not probable he could be attended to with the requisite care, I advised him to become an inmate of St. Vincent's Hospital, where I then was on duty. He entered it on the 19th, and on the following day I removed a number of polypi from the right nostril, with the view of enabling him to breathe freely through this channel, lest the other should be closed by the operation, which I determined to perform on Saturday the 22d.

Although the patient came under my charge as a private individual at the hospital, I considered it due to him as well as myself to call a consultation of my professional colleagues composing the surgical staff. This, I may premise, is one of the advantages attendant on an institution founded on the basis of St. Vincent's. According to the rules of the establishment, each member of the medical or surgical board possesses the privilege of introducing a private patient at any time and treating him within the walls of the edifice. He has thus the benefit of the collective advice of the establishment, in addition to the admirable care bestowed upon him by the beneficent Sisters of Charity who preside over the institution, and devote their attention to the

alleviation of the sufferings of the diseased and the sick with an earnestness and a zeal truly worthy of their name. The consultation on the present occasion, however, was not unanimous. Almost the whole of my professional brethren there considered the issue of an operation as doubtful, inasmuch as it could not be ascertained to what extent the disease had invaded the orbital foramen, or what strictures the bony attachments involved. To one less accustomed to operative surgery, and with less experience in cases of emergency, such doubts in the minds of the eminent individuals who constituted the board, and of others, might have been productive of hesitation; and, under ordinary circumstances their opinion as to the impracticability or impossibility of removing the whole of the bony mass might have caused me to pause, if not abandon the design. But feeling confident that in undertaking the operation I should give the patient the sole chance he had for the prolongation of his life, and he reposing the most implicit confidence in me in return, I determined to proceed; the more especially as I knew it never could be attempted under circumstances more advantageous.

Having resolved to operate, I proceeded in the following manner to carry out my design. The patient being placed on a bed was brought under the influence of a mixture consisting of equal portions of chloroform and sulphuric ether, which in such cases I recommend. I then made an incision from the ala of the nose in a direct line upwards to about half an inch above the superciliary ridge, and afterwards a transverse one from the centre of the upper eyelid across the nasal bone to the opposite eyelid, terminating in a line with the inner canthus of the right eye. The four flaps thus made were next dissected up, beginning at the points where the incisions intersected each other, and carefully extending through all the tissues to the bone. Upon raising the flap nearest the nose, it was evident that a large portion of the osseous mass extended into the nasal cavity, and it consequently became necessary to remove the whole of the fleshy portion of the nose from the nasal bone of the left side. This being accomplished, I dissected the opposite flap clear from the tumour, keeping as close as possible to the bone in order to avoid wounding the eyeball or its surrounding tissues and their attachments. This too being done, I found the bony tumour was firmly impacted in the orbit and nasal cavity. I consequently separated the nasal bone of the left side from its fellow of the opposite by means of a strong pair of Liston's bone-forceps, and, with a fine straight flexible saw detached it from its frontal attachment. By a little manipulation I was thus enabled to remove the portion represented in Pl. I., Fig. 3; and, on accomplishing this, I next by means of a delicate chisel and hammer gradually detached the other bony mass represented in Pl. I., Fig. 4, from the orbital plate of the frontal bone, and also from the orbital plate of the superior maxillary. The os unguis was so thoroughly incorporated with the tumour that I was obliged to remove it along with the mass; and the whole being now somewhat movable, I made a slight traction by means of a pair of strong forceps.

A few more cuts of the chisel enabled me to withdraw it; and, to my own great satisfaction, as well as the astonishment of all present, I discovered that the orbital plates had not been injured. Had these been so, I need not say the result would have been most serious: the brain would have been exposed, and it would have been almost impossible to have avoided a fatal issue. But this danger was happily evaded, and all now went on comparatively easily. On removal of the tumour from the orbit, a slight discharge of pus took place; accounting in some degree for the pain previously experienced in that cavity.

The next important point which presented itself for my consideration was the restoration of the eye to its natural and original position. From attempting this I was dissuaded by some of the professional gentlemen around me, from whom I had derived valuable assistance during the operation. They recommended that the cavity should be filled in with lint; but, desirous of doing all in my power for the benefit of the patient, and seeing no reason why the eye should not be replaced—considering also that there was every probability of its coverings adhering, there being two raw surfaces to be brought in contact—I replaced the organ and drew the edges of the wound together by means of interrupted sutures and adhesive straps. A bandage was next passed around the head, containing a small compress which was placed over the eyeball. The latter was thus retained in its natural cavity; my object being to fill up the orbital foramen and have union by the first intention.

To Prof. Mott, Drs. Van Buren, Schmidt, and Finnell I am much indebted, both for their good counsel and able assistance in this formidable operation.

The patient having now recovered from the effects of the anæsthetic, was placed in bed and left for some hours to repose. Nothing worthy of notice occurred in the interval. In the evening I visited him; and, as he was suffering some pain, though no vomiting had occurred, I directed twenty drops of Magendie's solution of morphia to be administered to him and repeated, if necessary, during the night.

*April 23.* In the course of the day I visited him twice, and ascertained that he had taken a second dose of morphia as well as slept part of the night. I directed mild diet to be given to him.

*24th.* On returning this morning I learned that he had slept well during the previous night, with the aid only of a small anodyne. I ordered some light nourishment for the day.

*25th.* This morning I found the patient had slept well without the anodyne and felt comfortable.

*26th.* To-day he was a little feverish. Having an amputation of the leg to perform in the same ward, I was under the necessity of ordering him to be removed to another room. This increased the fever, and on the following day, the *27th*, the pulse was 110. I consequently ordered a gentle aperient and low diet to be given him.

*28th.* The fever continued. Erysipelatous inflammation had also appeared

on the cheek, and during the day it extended over the nose. I loosened the dressings. No discharge ensued. Applied tincture of iodine for some distance to the sound skin around the inflamed surface, and ordered the face to be kept powdered with scorched rye flour. I also directed ten drops of the tincture of muriate of iron to be administered to him every two hours.

29th. This morning I ascertained the patient had not rested well during the night; but the fever was less, and the erysipelas had decreased on the nose, though it extended over the jaw. I consequently ordered fifteen drops of the tinct. ferri mur. to be given every two hours, and in the afternoon administered the same quantity every hour. In the evening I had the satisfaction of finding that the erysipelas had left the jaw, and was now confined to the forehead. Still, I considered it prudent to order the same treatment to be continued during the night, but directed a more generous diet to be given, and a little porter.

30th. The fever had diminished, and the erysipelas was confined to a small spot on the head; but the patient was much debilitated. I consequently ordered the porter to be continued, with strong beef-tea, &c., but did not deem it expedient to interrupt the administration of the tinct. ferri mur. I considered, however, that I might now with safety remove the dressings, as well as take out the stitches; and, on effecting this, was gratified to find that the wound had entirely healed, with but very little discharge of pus from the nostril. Adhesive straps and a little lint were applied constituting the second dressings.

May 1st. The erysipelas had now completely disappeared, but the patient continued very much debilitated, and required stimulants with good nourishment frequently during the day.

2d. He still remained very weak; and this condition having now continued several days, it became necessary to give him a large quantity of stimulants and nourishment. It was now that he experienced, to its fullest effect the benefit of the Institution into which he had had the good fortune to find entrance. To the devoted attention of the kindest and best nurses in the world—the Sisters of Charity—who follow directions to the letter, and feel a deep and earnest interest in the sick, this man may in some degree attribute his recovery. Too much cannot be said in favour of these truly pious ladies. Sacrificing themselves to the cause of humanity, looking for no reward in this world, they deserve all they can desire or anticipate in the world to come. None can appreciate them as they should be appreciated, save those who have been the recipients of their sedulous attention, or have watched them at the bedside of the sufferer. Day and night they are at their posts, anxious to devote their all to the relief of suffering humanity, and bestowing their care wholly irrespective of country or creed.

Secondary to the recovery of the patient from so formidable and dangerous an operation, the most gratifying result in this case is the fact that the eye, which had for several years been gradually but completely pressed out of its

regular position, was eventually replaced; and that the vision, which had been totally lost for several years, was perfectly restored. So soon as he was able to sit up—that is, about sixteen days after the operation—the patient called my attention to his eye, which appeared to move naturally, and to his astonishment he found that he could distinguish objects, although not very distinctly. His sight continued to improve, as well as his general health; and in about a month he was able to leave the hospital entirely cured.

From time to time I have seen him since, and observed with pleasure the gradual improvement in his vision. In less than three months after the operation, the sight was as good in the eye operated upon as it was in the other, and his personal appearance was much improved. The eyeball had resumed its natural position, and, when I last saw him, the scar on the face was scarcely perceptible.

The annexed drawings, Pl. I., will afford some idea of the case, both prior and subsequent to the operation. Fig. 1 represents the appearance of the patient before the operation, Fig. 2 his appearance four weeks after the operation. The tumour, which is of a dense osseous substance, is represented, Pl. I., Figs. 3 and 4, one-half natural size. Its weight is three ounces and one drachm. I am not aware of any similar case in the annals of surgery.

Many instances of exostosis are of course on record—this being unhappily a prevalent form of surgical disease—and Sir Astley Cooper, as I have already remarked, has detailed one of an analogous order which affected the bones of both orbits. In his case, however, it was allowed to prove fatal by extending into the brain, whereas in the present instance the disease has been wholly arrested by a timely operation, and up to the present moment there is not the slightest indication of its recurrence. It was besides accompanied by peculiar circumstances. The occurrence of erysipelas at the critical moment in which it appeared might, but for the prompt treatment adopted, have been attended with the same fatal results which have so often marked its course. In such instances I cannot too highly extol the peculiar virtues of the *tinct. ferri mur.* In the present case the patient was utterly prostrated by the effects of the erysipelas; but to its vigorous and unhesitating exhibition he is mainly indebted for his recovery. Secondary only in importance and anticipation was the restoration of his vision. The eyeball had been so long displaced that few would have looked to such a result; and it affords me subject for congratulation that, contrary to the opinion of my distinguished colleagues at the hospital, I determined to replace it, though at the moment I assuredly never expected that this resolution would have been attended with a success so agreeable to the patient as well as to myself.

209 TENTH ST., NEW YORK, November, 1856.



Fig. 1.



Fig. 2.

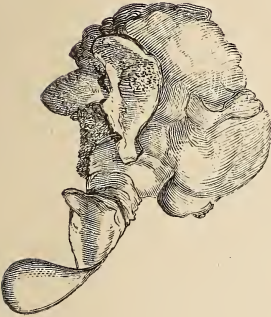


Fig. 3.



Fig. 4.



ART. IV.—*Rupture of the Right Rectus Abdominis Muscle from Muscular Efforts—Operation and Recovery, with Remarks.* By SAMUEL B. RICHARDSON, M. D., of Louisville, Ky.

BEFORE breakfast, and shortly after a healthy evacuation from the bowels, on Friday morning, February 29, 1856, Mr. B——, a healthy athletic young man, aged 28 years, in a half playful mood, hopped over a narrow ditch. Immediately after this effort, he was seized with acute, persistent pain about two inches below and to the right of the umbilicus. Simultaneous with, or rather just preceding the access of pain, he heard a distinct sound or *snap*, like the crack of a whip. Nausea, with a constant desire to evacuate the bowels, supervened and persisted.

Dr. John N. Lewis, of St. Matthew's Post Office, six miles east of Louisville, and about one mile distant from the residence of the patient, was called to see him soon after the accident. Finding him as described, he administered an enema *without* effect, and then ordered a dose of magnesia sulphas.

*Saturday, March 1.* Dr. L. found his patient with an aggravation of the symptoms existing the day before—without an action from the bowels—the saline solution, and everything else taken into the stomach, had been thrown up as soon as swallowed. Under this state of the case I was requested to join Dr. L. in conference at an early hour, which I did at 12 o'clock M. The condition of the patient was as above described, in addition to which there existed a flat intumescence or tumour in the region of pain, discovered by Dr. L. at his first visit, but now much augmented in size and extent, with very marked rigidity and increased sensibility all over the abdomen. It was agreed to apply twelve leeches over the tumour, followed by ice cap, after the bleeding ceased, and to administer chloroform by inhalation, *pro re nata*.

*2d.* Met Dr. L. again, at an early hour; patient's condition more aggravated than before; has *not* slept, he says, since the accident; vomiting very frequent since midnight, with constant nausea; leech-bites continue to bleed, manifestly reducing the force of the heart's action; there is a feeling of prostration, with headache; tenesmus persists.

After arresting the hemorrhage from the leech-bites by cauterization, it was agreed not to delay an operation, expecting, as most likely from the signs and symptoms present, that we should find a strangulated ventral hernia. I asked the question, before operating, if muscular and tendinous lesion might not be the condition? The answer to which was a decided negative by Dr. L. and Dr. John Hardin, the latter of whom I met on my way out of the city, and invited him to be present at the anticipated operation.

After confession and the eucharist (a papal priest having entered the room shortly after our arrival), I proceeded to operate—the formulary of which was not very dissimilar to that for incarcerated umbilical hernia.

After dividing, by a crucial incision made over the most prominent portion of the tumour, and extending somewhat beyond its limits, the integuments, subcutaneous cellular tissue, fat, and superficial abdominal fascia, a number of small coagula of extravasated blood were brought into view about the size of grains of corn; the tumour now became more apparent and tense. Expecting rather to find a hernial sac beneath, the *fascia profunda abdominis* was elevated slightly with a tenaculum and opened by horizontal movements of the knife, and such was its tensity that it almost split in advance of the scalpel as this was carried along the groove of the director.

This section completed, brought into view a large coagulum of dark, black blood. This, upon its removal, was found to occupy an irregular cavity very like that of a diffused false aneurism. It was supposed, by estimate, to weigh about one-half of a pound, resting and pressing posteriorly and deeply upon the peritoneum and bowels.

The peritoneum was found uninjured, advancing forward or rising as the bloody mass was removed. Upon clearing the exposed cavity of its bloody contents, the extraordinary nature of the injury was clearly revealed. The right rectus abdominis muscle entire, with the corresponding epigastric artery and its accompanying vessels and nerves, as well as the sheath of the rectus muscle, were torn completely across, and their ends retracted and separated one and a half to two inches. The precise point of rupture was a central one between the right linea alba and linea semilunaris, and the linea transversa which intersects the umbilicus, and the linea transversa next below it.

One artery only was tortioned—none ligatured. The anæsthesia developed by chloroform and continued during the operation, which lasted from fifteen to twenty minutes, was very perfect and satisfactory—the patient sleeping, happily, and almost unconscious of what was done, and in due time emerging from its effects without any manifest over-congestion or injurious effects upon the nervous centres. Warm-water dressing was applied, and directed to be continued to the wound, with morphia internally, and repeated if required.

*Tuesday, 4th.* Another conference requested; patient not regarded as in a satisfactory condition. After meeting, removed the dressings and found another coagulum occupying the cavity of the wound, resting, as the first, upon the peritoneum; not so large as the first; some fluid blood discharging from the wound. He slept some during the past forty-eight hours, under the influence of morphia, which has been administered at intervals since operation. No action of the bowels for four days (or since accident); tongue furred; pulse 82, and slightly tense; abdominal tenderness diminished; bladder evacuated spontaneously; no appetite; thirst continuing, but no vomiting since afternoon of the day of operation; some nausea; tenesmus not so great, though yet present. We agreed to give five grains of calomel, to be followed in six hours with Seidlitz powders; and, after the action of the bowels to resume the morphia.

25th. Patient has been doing well; he walked about his room the third week after the operation, and came to the city; has taken occasional saline aperients, and a few doses of morphia at bedtime; appetite good. The wound, upon examination, is found to be closed through most of its extent, mainly by granulation; depressed granulous surface in the centre of the wound; no hemorrhage from the wound since the 4th inst. A depression will most probably always exist at the seat of injury.

*Remarks.*—I have not met with a similar case to the above in my practice or reading, and I have consulted *all* the English and French surgical literature on the subject, contained in my moderately full private library. In tome 20, *Dictionnaire de Méd.* (30 vol. edition), pp. 360–62, I find reference to such an accident, but no detailed case.

The article in the dictionary referred to, is by Olivier, and as it contains the *only statistics* of muscular lesions within my knowledge, I will here translate and append it to this article for the convenience of those who may not have access to the original.<sup>1</sup> *Diagnostically and pathologically*, as

<sup>1</sup> “*Rupture of Muscles.*—Well established examples of this accident are not found recorded prior to the conclusion of the last century. It is to the labours of Roussille-Chamseru, and of M. Sédillot (*Mém. et Prix. de la Soc. de Méd. de Paris*, 1817) that we are indebted for the knowledge possessed on the subject at the present time. Many authorities have supposed that *tendons alone* were susceptible of being broken, and Bichat, in his *General Anatomy* (tom. viii. page 153, Paris, 1801), endeavours to explain this phenomenon by supposing that, when a rupture occurs, the fleshy fibres are in a state of contraction, whilst those of the tendons are passive, the former thereby possessing greater density than the latter are least likely to yield. M. Sédillot has proven the unsoundness of this theory of the great anatomist, by collecting a number of well established cases, in which the solution of continuity was confined to the *fleshy fibres alone*. ‘These lesions,’ he says, ‘are always due to a sudden and unexpected effort, which puts into forcible contraction certain muscles, or portions of muscles, whilst the remainder of the organ and its connections are in a state of relaxation. The fibres thus contracted not having the power to resist successfully their antagonists, or against the resistance placed at their extremities, and ceasing to exert any power, experience a forced elongation, resulting in their rupture.’ (*Mém. Cité.*) Whatever value may be attached to this explanation, compared with the one referred to before—in summing up the twenty-eight observations embraced in his work—M. Sédillot states that in *twenty-one* cases, where the seat of the lesion is indicated, *thirteen* of them took place at the point of insertion of the *fleshy fibres into their tendons*, and in *eight* the lesion was found to have occurred in the *body* of the muscle itself. Boyer and other authors have reported analogous facts.

“This accident occurs, as we have already stated, with much less frequency where great and sustained efforts are made, than in *automatic, sudden and unexpected* movements; for instance, to prevent a fall, avoid a shock, &c. &c.

“The muscles most exposed, or liable to rupture, are those of the *calf of the leg*, the *straight anterior muscle of the thigh*, the *rectus abdominis*, the *psaos*, and the *deltoid*, &c.

“The sudden and involuntary contraction which occasions the rupture is ordinarily interrupted by an instantaneous sharp pain, which indicates the precise moment of the

well as the operative procedure employed, this case furnishes much of interest and of *practical* importance. By its teachings, it is evident that this accident might be *confounded* with other grave pathological states—as hernia, intussusception, lesions of some of the abdominal contents, &c. &c. *Without* an operation, we may conclude that an *abscess* would have formed in the site of the muscular rupture (*irritation* not destroying life too soon, as it threatened to do), and pointing and opening internally, thereby developing *fatal* peritonitis.

The entire subject of the *union of divided muscles*, whether from trauma or by muscular action, the nature of the process set up by the vital organism

laceration, and arrests the movements of the part involved. If let alone, the pain persists ordinarily a considerable time—sometimes for a week, but with diminishing intensity. This accident is very often accompanied by a *peculiar noise*, occasioned by the rupture of the muscular fibres—compared to the snap of a whip. When a considerable number of the fleshy bundles have been torn, or where a muscle has been ruptured transversely through its entire thickness, there exists at the seat of injury a *depression* proportioned to its breadth and depth, which depression is increased or diminished as the injured organ is put into a state of extension or relaxation. This condition is sometimes observed at the moment of injury—sometimes afterward—the effusion of blood which results from the tearing of vessels, determines an ecchymosis and *swelling* sufficient to *mask* the depression, but the signs of sanguineous effusion rarely occur before the lapse of twenty-four to forty-eight hours after the injury, and do not cease before the termination of the first week.

“Recovery rarely occurs short of many months, when muscular rupture is abandoned, or receives no treatment. And here, as in external wounds, cicatrization is effected by interposed cellular tissue, assuming a fibrous aspect. These injuries do not give rise to *serious* results unless the lesion is extensive, or some deep muscle of the trunk is involved. In reference to prognosis, the case of a young man is reported, who ruptured the psoas in raising a tub. High inflammatory action supervened, terminating in *abscess*, &c. &c., and finally death. (Sédillot, *Mém. Cit.*, et Boyer, *Traité de Chir.*, t. xi. p. 89.) This observation being very incomplete in regard to the pathological anatomy, it is impossible to know whether the numerous phenomena observed were the consequence of rupture of the psoas alone.

“The means adapted to favour union of ruptured muscles are, position, repose, bandage, and others to meet the symptoms. The ruptured muscle should be placed in a state of relaxation by positions of the limb: if the lesion is considerable, involves a voluminous muscle, or many muscles, or *deeply* situated ones, as the psoas muscle; or, finally, if the subject is very irritable, the member should be kept in almost absolute immobility during eight or ten days. Compressive bandages are the most appropriate means for maintaining quietude, applied as methodically as the nature of the injury will permit. The experience of M. Sédillot, according to his reported cases, proves the superiority of this ‘*appareil*,’ and it is not easily understood why other authors on this subject have not insisted more upon its adoption. Compression favours relaxation of the muscle, approximates the ends of the divided organ as far as it is desirable, resists new contractions, and finally facilitates the absorption of the effusion and resolution of the engorgement. Should the engorgement be very great, with the supervention of febrile or inflammatory reaction, general and local bloodletting, fomentations, poultices, &c., should be resorted to.”





PROF. MEIGS' CASE OF DOUBLE-HEADED MONSTER.

to accomplish it, as well as the nature of the new bond of union, &c. &c., are all brought under consideration in the study of this case. For an observation on this subject, with remarks furnished by myself, in which I had an opportunity of examining the structure uniting a divided muscle of considerable magnitude, the interested reader is referred to the *Transylvania Journal of Medicine*, 1837-38. In conclusion, it may be inferred that *hernial* protrusion *might* occur through the cicatrix of a united rectus-abdominis muscle.

LOUISVILLE, *Sept.* 4, 1856.

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ART. V.—*Case of Double Fœtus.* By CHARLES D. MEIGS, M. D., Professor of Midwifery in Jefferson Medical College, Philadelphia. (With a plate.)

IN the number of this Journal for July, 1855, I gave some account of a specimen of hepatodym children presented to me by Dr. G. W. Børstler, of Lancaster, Ohio. The account was illustrated by two lithographs from Root's daguerreotypes.

The present case is illustrated by a drawing on stone, by Mr. Daniels, a clever artist, now much occupied in this city.

I am indebted for the fine specimen to the great liberality of Dr. S. M. Ross, of Darlington, to whom my sincere thanks are due for so great a kindness.

The figure, Pl. II., exhibits a faithful representation of the double fœtus, seen in front.

The genital organs are female.

The right eye of the right and the left eye of the left fœtus are perfect; while the right eye of the left and the left eye of the right fœtus are fused together into one single eyeball, covered by a compound palpebra with three canthi; the fused inner canthus being in the middle of the lower eyelid. All traces of the outer canthi of this compound eye are lost.

In the fusion of the heads, the left and right ears of the right and left fœtuses are lost, with the exception of the small tubercle seen in the middle of the faces. The left fœtus has a double hare-lip, and the right one a common hare-lip. The calvaria are deficient in both the children, so that they are anencephalous. There was also failure of development of the spinous processes and bridges of the cervical and dorsal vertebræ, giving rise to spina bifida of both the dorsal and cervical ranges, while the lower lumbar and sacral vertebræ are perfectly well developed.

This circumstance is interesting, showing, as it does, that the simplicity apparent in the two well-formed arms and legs, and the single trunk, is nevertheless a real duality of individuals. The dark dermoid excrescence that covers the top of the head is too imperfect to contain any hair-follicles; so

that only a few scalp hairs are seen, as in the figure, growing from the very upper part of the forehead.

There is but one navel and umbilical cord; yet, doubtless, on dissection, one would find a double ductus venosus, since it is impossible to conceive of absolute simplicity in the liver. On the contrary, the liver, however intimate the union of the livers of the two children, must retain the characteristics of its duality. Neither of these children, in an embryo state, could have existed without its omphalo-mesenteric system of vessels. Indeed, I cannot conceive of a liver as antecedent, in time, to the omphalo-mesenteric apparatus, but rather as secondary to it. The liver is really constructed by the mesenteric or portal system, aided by the hepatic, a branch of the cœliac artery. This being the case, I take it for granted that the livers, however complex they may be, making this a hepatodym, must be two, not only in name, but in fact. The compound or dual face, with its two independent mouths, shows that there are two fauces, a pharynx for each, and a more or less distinct œsophagus; and, possibly, separate stomachs.

I have not dissected the specimen, because I consider it most valuable as a museum specimen, and because Prof. Serres, in his *Anat. Transcendente*, has given us the anatomy of analogous forms so completely as to leave us nothing to desire.

In my paper on Dr. Boerstler's specimen (this Journal, July, 1855), I accounted for the singular place and appearance of the posterior leg by showing that the peculiarity was due to a partial loss of the anterior portions of the left and right fused acetabula. In the present instance, the duality of the face is due to the mode in which the cephalic regions of the two embryonal membranes were approximated; that is, the faces were somewhat averted: perhaps horizontal antero-posterior diameters of the two faces might leave an angle of twenty degrees. This was enough to ruin by engrafting the left and right eyes, and totally to destroy the left and right ears. What a riddle would result if these horizontal antero-posterior diameters of the two faces could have been parallel! In that case, it might be impossible, from external inspection, to say whether the being were single or double. We may conceive that two embryos should come together, side by side, in the womb, and be so accurately in contact that each should lose by default one absolute half of its form; having two eyes, one nose, mouth, and chin, two perfect ears, and a head in all external characteristics well and completely formed.

But there is a bound set to the human imagination. Salmacis might clasp her lover in her arms, and implore the gods to make of them one body; but the pranksome deities of Greece and Rome had no powers equal to such transformation: indispensable duality of the livers is an insuperable bar to the metamorphosis that the nymph prayed for.

As I have declined to make a dissection of this specimen, I am not able to say what is the state of the sacrum—as to whether single or double. I can detect no signs of a third or fourth leg anywhere beneath the integuments;

and, as the two acetabula are apparently completely lost in the mutual arrests, I infer that no vestige of a left leg for the right, or a right leg for the left foetus exists.

December 7, 1856.

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ART. VI.—*Case of Nymphomania successfully treated.* By JOHN TOMPKINS  
WALTON, M. D.

I WAS called, February 5, 1856, to see a girl named Catherine, who was described as being "in a fit." She was found to be in a paroxysm, the agitations of which were at once peculiar and revolting. Her countenance was distorted, face flushed, conjunctiva injected, pupils fixed and contracted, and pulse turgid. This paroxysm was peculiar and specific in the expression both of countenance and figure—in the lascivious leer of her eye and lips, the contortions of her mouth and tongue, the insanity of lust which disfigured her face, and made it fearful in conveying the expression of such intense suffering and anxiety as it portrayed, as well as in the positions she assumed and the movements which could not be restrained. My presence at first, as I was the only male present, increased the energy of her convulsions; but, using the "*passe mesmerique*"<sup>1</sup> in connection with the external applications usually employed, she soon began to recover; however, ere the agitation had subsided, her frame was again convulsed with frightful vigour. Though the mother said that the girl had been previously treated for an eclampsia, I had no doubt at all of the nature of the case, and acted upon a hint derived from Prof. Jackson, who, in the University course of 1850–51, in relating the fact of housewives effectually checking the morbid desire to incubate by plunging the posteriors of the hens in cold water, suggested that it might be advisable to pursue the same plan with women when in a condition of ungovernable sexual excitement. Upon that hint, I ordered a cold hip-bath to be given her. She was forced sitting into a tub of cold water, retained there for a few minutes, and then taken out in a general torpidity of mind and body, with feeble pulse, imperfect aëration, and an almost perfect coma; but, after being thoroughly dried by friction with coarse towels, reaction ensued before I was able to return to the house. R.—Ext. conii, pulv. opii, āā gr. j in pil. was then exhibited. This was at about 8 P. M. At 11 she was in a sound sleep, with countenance, pulse, and skin undisturbed. The next morning she was in her general health. I then endeavoured to learn something of the history of the case, but could only ascertain that she had endured similar attacks

<sup>1</sup> This course of action, when accompanied by a calm, steadfast gaze, soothing words, as well as by passes over the face, head, and breast, has been usefully employed in hysteria and other nervous affections.

during the past year, that these had increased in frequency and violence, and that this last had been the most severe of any ever experienced. The only suspicious circumstance was, that they always occurred when she was alone or with those known to be lewd.

The patient was a well-proportioned girl of seventeen, of a sanguine temperament, possessed of an ingenuous countenance and pleasing deportment; but her small eyes, the arching of the internal canthus, the drooping lid, the sharp outer curving of the upper lip, which itself was as thick as the inferior one, the large, broad nose and chin, the disproportionate size of the posterior portion of the head, as well as the general development of her frame—these all evinced that the primary cause of the disease arose or was seated in her animal organization. Her defective education, mode of life, vulgar comrades and associations, the exposure and contagion incident to several families living in one house, with a hydrant and water-closet shared by all the court, and the immorality of the youths who lounged about the place, were strong corroborating evidences of the cause of her affliction. But though the mother was suspicious, she had no positive knowledge of any criminal conduct or unchaste habits on the part of Catherine, nor till near the end of March, even in a private interview, would the girl admit that she was a wanton, or even addicted to manustupration. A vaginal examination was made, when negative evidence as to her virginity was presented in the distension of the organ, the presence of the carunculæ, and the flaccidity of the nymphæ. From the size of the labia minora, the irritability of the mucous coating of the vulva, the morbid delicacy of the clitoris, together with the existence of a leucorrhœa for many months, without there being any morbid condition of the uterus or discoverable lesion in the vagina, or any symptomatic testimony to invalidate the diagnosis, I concluded that she had been addicted to *attouchement*, and that she was unchaste. Without imparting my suspicion, I simply advised the mother, who was suffering from mental agony, to closely scan the daughter's conduct; and, frightening the girl with the terrors of an early and horrible death, or of repeated returns of her distressing malady, got her to obey the prescribed routine. At my solicitation, the mother called in their clergyman, to whom, as he was a man of honour, I imparted the suspicions entertained of the girl's depravity. It may be as well to state here that her after-admissions confirmed the diagnosis; she confessed her addiction to masturbation, stating that her appetite was insatiable, and that her mother watched her so closely as to prevent sexual fruition save at rare intervals.

Understanding the disease to be an insanity of the venereal desire, the indication was plainly to subvert that morbid appetite by rendering her emaculate for a time, as well as to assist such endeavour by attention to her habits of life, so as to destroy the force of the associations which had accumulated during the period of riot and madness. This last, the circumstances of the family prevented me from fully accomplishing. Having the aid of the mother and priest in undertaking to correct any lesion in her *morale*, the *physique* was

attended to as follows: For the leucorrhœa: R.—Argenti nitras gr. x; aqua destil. fʒj.—M. Sig.—Injectio per vaginam. This was used, with the hope that the change created by the caustic on the mucous membrane might also lessen its sensitiveness. Injections of cold water, combined with an astringent, were afterwards used daily. These topical agents were assisted by a vegetable diet, regular exercise, and more decorous behaviour; whilst the constitution was being influenced by—R. Extractum dulcamaræ ʒj; extractum nucis vomicæ gr. v; pulveris camphoræ ʒj.—M. et divid. in pil. xx. Sig.—Three to be taken daily.

*February 19.* Having, in spite of all care, been intercepted whilst in *coitu*, a new and alarming series of paroxysms ensued. The cold hip-bath was again used, with the happy result of immediately checking the convulsion. Finding that the leucorrhœa had returned, another injection of nitrate of silver was administered; and, as there was a considerable quantity of mucus secreted from the vulva, a mild solution of sulphate of zinc was applied, by means of a napkin, to its surface. This arrested the discharge and diminished the irritability of the parts. To gain control over the system, the following formula was substituted for that first exhibited: R.—Ext. conii ʒj; ext. dulcamaræ ʒij; ex. nucis vomicæ gr. v.—M. et divid. in pil. xx. Sig.—Four to be taken daily. The hygienic directions were renewed, and the frequent use of cold water, in the form of injections, local application to the genitals, and occasional hip-baths, was continued.

*March 22.* Another attack supervening, I allowed the convulsions to have full sway, with the impression that fear, agony, and exposure would prove material aids in the course of treatment. Nor was there error in this opinion, for a full confession was voluntarily made, with, I trusted, earnestly sincere promises of amendment. The course of treatment was begun anew by the administration of a hydragogue cathartic, together with the application of leeches to the perineum. The allotted diet and general regulations as to habits were persevered in, whilst the internal remedies were changed by giving a grain of the extract of dulcamara daily, and injecting two fluidounces of the decoction of bitter-sweet into the vagina daily, and allowing it to remain as long as possible.

*April 13.* The convulsions were renewed after an unsuccessful *coitus*, but her sufferings were less intense than ever before. Again was she forced to submit, unaided and un comforted, to the agony of her attack. Previous to this time, her general health had been excellent; but she was now so debilitated that I was obliged to exhibit full doses of tinct. cinchonæ comp., and allow her the use of meats at dinner. This was continued for two weeks, when, her system having recovered its ordinary tone, the vegetable diet was renewed. Meanwhile, the following was administered: R.—Ext. dulcamaræ ʒij; alcoholis fʒss; ft. sol. saturand. et adde tinct. aconit. rad. ʒx; tinct. digital. fʒj.—M. ft. in sol. Sig.—Take fifteen drops three times a day. The arterial sedatives were indicated by the irritability of the heart, which, within

the last week, had become distressing. This formula was used for about eight days, after which three grains of the extract of dulcamara were given daily from the 26th of April to the 30th of May, when she declared that not only was the sexual desire subverted, but that, on being tempted to have intercourse a few nights previous, she had found herself emasculate. Since that time, I saw her weekly till near the end of July, and was more than once denounced for having destroyed her virility. I controlled her with threats of exposure on the one part, if she destroyed my work, and, on the other, promised to render her sexually fit to assume the duties of a wife whenever such services were needed. In concluding, it must be stated that though the treatment is here represented as being nearly continuous, yet it must not be so considered, for at times arterial excitement, cereberal stimulation, or their reverse, were induced when the constitutional remedies were suspended for a few days, and appropriate means taken to check the morbid condition excited by their use. When resumed, it was with caution.

This day, September 13, I saw the girl, who says that though she now occasionally experiences a slight venereal orgasm, yet she has no inclination to resume her old habits, and renew the disease which cost her such an effort to be rid of.

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ART. VII.—*Remarkable Gunshot Wound.* By WM. F. EDGAR, M. D.,  
Ass. Surg. U. S. A.

THE following case appearing to possess some points of unusual interest, it has been deemed worthy of a report in detail.

Private B., of Company "L," 1st Artillery, being on duty with a mounted detachment operating in the Big Cypress whilst at Fort Simon Drum on the morning of the 3d of May, accidentally shot himself in the left arm with a large-sized Colt's revolver. The ball entered the middle of the internal side of the arm, at about three inches above the internal condyle of the humerus, and passing over the anterior aspect of the bone, made its exit at a point nearly opposite. Asst. Surgeon R. F. Simpson, who was on duty at the post at the time, says: "I saw the wound immediately, and found florid blood spirting from it in jets; supposing the brachial artery to have been wounded, I placed my fingers over it for a few minutes, when the hemorrhage ceased. I then dressed the wound with a compress and bandage, and directed the application of cold water, at the same time I noticed the absence of the pulse at the wrist of the wounded arm." The patient had been considered the subject of mental aberration since he has been known in the service, and appeared to suffer exacerbations, as it were, at times. He tore the dressing from off his wound twice during the day, but did not induce a return of the hemorrhage; after the third dressing it was not disturbed again, but on the evening

of the 6th he made his escape from the fort, and walked fifteen miles during the night, through the Indian country to the camp of his company, but still no hemorrhage, and the wound did well. On the 20th of May, he returned to this post with his company, and I took him in hospital. The wound in the arm had nearly cicatrized; he only complained of some stiffness from contraction at the bend of the elbow; at the end of a week or so, the wound having entirely cicatrized, I sent him to his quarters. On the evening of June 12th, it appears private B. bought a pistol at the sutler's, a five inch Colt's revolver, and on the morning of the 13th (Friday), immediately after breakfast, and in the company's quarters, having perhaps an exacerbation of his hallucinations, drew his pistol, which he had previously loaded, and fired promiscuously at two of the men in the quarters without effect; he then drew on the Orderly Sergt., who, speaking to him coolly, asked him what he wanted to shoot him for; he replied, "Then I'll shoot myself," and suiting the action to the word, did so by putting the muzzle of the pistol against his left side. The wound not proving immediately fatal, he was taken to the hospital, where he ejected a large quantity of ingesta from the stomach, accompanied by a few ounces of blood. He manifested a great deal of strength and mental excitement, and his pulse (only to be found at the right wrist) was a little depressed; he was put to bed, and cold cloths applied to the chest and abdomen, and a little solution of sulph. morph. administered, under which he became quiet, and remained so during the day, occasionally taking a little cold water or cold tea; his pulse rose to nearly the natural standard, and with a little more sol. morph. he slept and passed a quiet night. In the morning (Saturday) found him doing well, complained of some soreness in the region of the wound, voided urine once or twice during the day, had small motion of the bowels in the evening, asked for and took a little weak broth, took a  $\frac{1}{4}$  gr. sulph. morph. at bedtime, and continued quiet and comfortable till 3 o'clock on Sunday morning, when he began to complain of pain in the abdomen. Fomentations were applied; at 6 o'clock had some tympanitis and hiccough, small thready pulse, countenance sunken and anxious; a few drops of sol. morph. allayed the hiccough; complained of sensation of hunger, and continued to sink until 12 o'clock, when he suddenly expired. Being anxious to see the result of his injuries, especially the original one of the arm, I and Asst. Surgeon John Moore, on Monday morning proceeded to make an examination post-mortem.

The brachial artery being cut down upon and dissected out from the axilla to its bifurcation at the elbow, was found incorporated with, and firmly bound down to the bone by the injured and contracted mass of muscular tissue in the original track of the ball, two-thirds of its circumference having been carried away by the ball for three-fourths of an inch of its length; then, for the distance of half an inch above and below this contraction, it was slightly enlarged rather than contracted, solid and cord-like. On opening the chest and abdomen, there were little or no signs of inflammation; there was con-

siderable effusion of blood in both, and we found that the ball had entered the body between the cartilages of the last true and first false ribs, about two and a half inches from the point of the ensiform cartilage, had passed through the stomach at its junction with the œsophagus, through the diaphragm, inferior anterior edge of the left lung, apex of the heart, cutting within a line of the interior of the right ventricle, and into the right lung.

That an artery, of the size and situation of the brachial, should, after the receipt of such an injury, be attended by so favourable a result, without ligation or more compression than was made, will not, I believe, be considered a common occurrence; and that an individual after such lesions, especially of the stomach and heart, should live for forty-eight hours without manifesting more untoward symptoms than appeared in the fatal injury in this case, appears also to be a point worthy of remark.

TO GENERAL THOMAS LAWSON,  
*Surgeon General U. S. A.*

ART. VIII.—*The Ecraseur Linéaire* of M. Chassaignac. By A. GEORGE, M. D., of Baltimore. (With three wood-cuts.)

AT a meeting of the Chirurgical Society of Paris, held in 1850, a memoir was presented by M. Chassaignac, relative to an instrument of his invention, then in course of improvement, and called by him the metallic articulated ligature. He had in his practice met with those difficulties which all surgeons have experienced in the use of the ligature as applied for the removal of portions of tissue, tumours, etc., in the great length of time their action requires, and the limited strength even the best of them possess. Yet being aware that under certain circumstances the knife cannot safely be applied, he had endeavoured to unite in this instrument the security of the ligature with the rapidity of the bistoury, and if we may judge from the opinion of the society, expressed after witnessing his experiments, he had succeeded. Since that period the instrument has undergone considerable modifications, and in the hands of Mathieu, has been made more powerful, graceful, and altogether better adapted to its purpose.

To facilitate the description, I have added two diagrams. In Fig. 1 is seen, "B," the barrel or sheath of a flattened form, and in length from six inches to ten or more, with a bore of about  $\frac{1}{2}$  by  $\frac{1}{4}$  inch or larger, in proportion as the sheath is longer. It is open or free at both ends, but at one extremity is arranged the wooden handle "A." Within the barrel, and running its whole length as well as that of the wooden handle, are two strong rods, which slide in each other by means of grooves, as shown in Fig. 2. At

one end these rods fasten by small pivots to the chain "C," at the other is opened the steel handle or lever "F," which being alternately raised and depressed in a see-saw manner, communicates an advancing movement to each rod in turn, the extent of this advance being governed by the catches "D" on each side the barrel which play into the teeth of the rods. In this way a sawing or rubbing movement is given to the chain, whose advance is further influenced by the greater or less *width* of the teeth just mentioned.

Fig. 1.

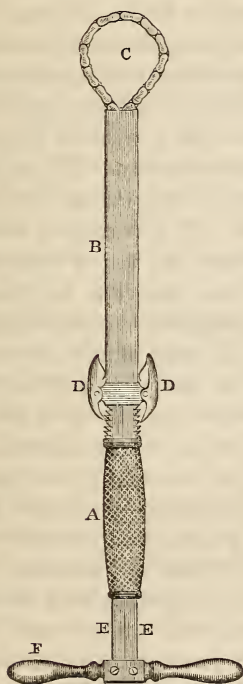
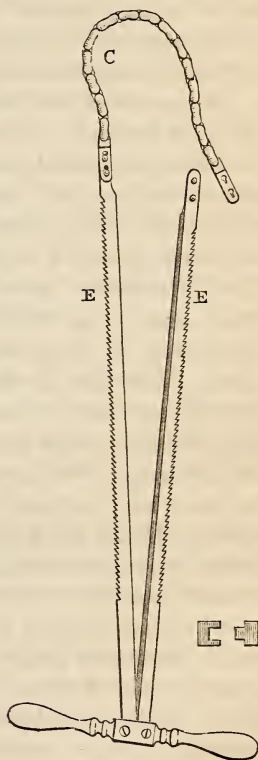


Fig. 2.



The chain is made precisely as is the ordinary chain saw, with the exception of the teeth, and is stronger and heavier, with each edge equally obtuse, except for certain purposes when the inner or cutting edge is somewhat bevelled. The interior arrangement and the joining of the several parts, will be understood by a glance at Fig. 2. Fig. 1 represents the instrument ready for use. It is obvious that its mechanical arrangement is one affording the operator great power, as great perhaps as may be attained by any instrument of manageable dimensions.

The mode of action of the common ligature is too well known to need more

than a reference here, and every favourable condition fulfilled by it is carried out by the chain, with this addition, that the supremacy of the latter begins to manifest itself when the ligature becomes powerless. The strongest ligatures we possess simply condense; the chain rapidly reaches the maximum of condensation, and division follows.

It might, perhaps, not be uninteresting to speak more in detail of the physiological action of the Ecraseur, and describe some experiments illustrative of its power, but I can here do no more than indicate its prominent features and advantages, and I shall be satisfied if I but draw the attention of the profession to the examination of an instrument I have seen so successfully used by its distinguished inventor and other eminent French surgeons.

1. The Ecraseur is applied, as a general rule, by first pediculizing the tumour or tissue to be operated on, and then embracing the pedicle with the noose of the chain. Where no tumour is concerned the manipulation is different, as in fistula, where the chain is conducted through the channel by a probe, or in case of the tongue, where the organ is directly embraced by the chain. The ingenuity of the surgeon will readily discern the best mode of applying the chain when instructed in the principles of the instrument. M. Chassaignac, with the natural zeal of successful invention, would extend the use of the ecraseur beyond what seem to me its limits; thus, I have seen him amputate the female breast with his chain, but the same operation would have been more rapidly accomplished with the bistoury, and with equal security, for we can readily control the vessels in such parts, but in case of amputation of the tongue, hemorrhoids, erectile tumours, or whenever vascular parts are concerned, the advantages of the ecraseur are too obvious to need argument.

2. The chain being adjusted, the lever is put in motion by the operator, being regularly elevated and depressed in see-saw fashion—the degree of condensation thus gradually becomes greater and greater, until its maximum is attained and the separation accomplished. But to obtain the hemostatic effect, the great end and advantage of the instrument, the operation must be slowly performed, at least fifteen seconds (and sometimes one minute) must elapse between each advance of the chain. An aid is near at hand to indicate the periods to the operator, or he himself has a watch before him. This procedure is indispensable, and when carefully observed I have never seen any other than a favourable result. The duration of an operation, therefore, depends upon the mass and density of the tissue, but from five to ten minutes will ordinarily suffice for most cases; the amputation of the tongue in totality demands, however, twenty minutes to half an hour. If two instruments be used simultaneously, of course the time will be diminished by one-half. If too rapid a movement be given the handle, we approach the conditions of excision by a too prompt division of the pedicle, with this exception, that solutions of continuity effected by the ecraseur are much less liable to hemorrhage than those produced by the knife. But by a gradual action the coagula have time to form, the tissues are gently separated, and the operation

concluded without loss of blood. This closing of the vessels is, moreover, permanent. The after-treatment must of course be conducted upon general principles; most commonly M. C. uses for local application a little starch-flour thrown upon the wound if small, and glycerine, where the surface exposed is larger.

3. As the chain carries the compression of a tissue to its maximum before performing its division, the wound must necessarily be reduced to its smallest limit, and is far less than that caused by any other process.

4. The pain which we might suppose, *à priori*, would be intense, is probably no greater than under the knife after a certain degree of compression is reached, and the action is so gradual, the advance of the chain so almost imperceptible, that all *shock* is spared the patient. Indeed, since the introduction of chloroform, pain has become a matter of little moment.

5. When a mass is of great size, it is better to attack it with two instruments; dividing it. Care should be taken to avoid getting pieces of bone within the chain, and as far as possible to avoid the skin, which on some parts of the body opposes an extraordinary resistance, and indeed in some cases it is necessary to incise it before applying the chain. This is, however, a matter of simple detention, as it is not from the skin that we dread hemorrhage.

6. Sections performed by this instrument are not followed by putridity, and the tendency to inflammation is far less than after the use of the common ligature, caustics, and indeed, in many instances, of the bistoury. M. C. reports but one case of purulent infection, and none of tetanus. Suppuration is generally considerably diminished by this method, and cicatrization rapid; many patients operated for large hemorrhoids have left the hospital on the third day.

7. It is well known that the great success of the method of lithotripsy is due to its moral effect; in like manner many who would shrink from the surgeon's knife will willingly submit to a bloodless operation, and this is an advantage which experience will not deride.

8. The new method has been applied to the treatment of hemorrhoids, fistula in ano, amputation of the tongue (without section of the maxilla) at its base, phymosis, falling of rectum, polypi of rectum, uterus and naso-pharyngean, amputation of neck of uterus, varicocele, erectile tumours, extirpation of tonsils and testicle, and various tumours. The head and trunk of the foetus have also been separated in utero.

It is impossible to predict to what extent the application of the principle of the *ecraseur* may be carried; whether it will ever take its place among the apparatus for the greater operations may be doubted, but every probability exists that it will supersede the common methods of treating most of the diseases mentioned. Already it has attained great popularity in France, and I am convinced that the profession in our country will be forced to admit its claims, when they have examined the question.

It is not a mere novelty, a surgical toy, but an established fact, approved by

scientific men of the first order, and basing its pretensions upon numerous trials from which it has issued triumphant.

BALTIMORE, October 3d.

[NOTE BY THE EDITOR.—The *écraseur* of M. Chassaignac has excited much interest among the Parisian surgeons, some of whom pronounce it to be the greatest improvement in surgery since the discovery of anæsthesia. It has also been recently used by several of the most prominent London surgeons, who seem to regard it with great favour.

The original instrument of M. Chassaignac, manufactured by Mathieu, has been improved by Luer, and also by Charrière. The essential part of the instrument is a chain so arranged that it can be forcibly tightened around the part designed to be removed. In Mathieu's and Luer's instruments, this tightening is effected by means of a rack and pinion; in Charrière's by means of a screw. The objection to the two former instruments is that the chain passes through a tube which it is difficult to clean and keep dry, and it is not passed through very easily or fastened readily. They are also more complicated and more expensive than that of Charrière. This last instrument is represented in Fig. 3.

Fig. 3.



M. Charrière has also made other improvements in the instrument. He has combined the advantages of a straight and curved instrument by making several extremities screw on one handle. He has also so contrived it that chains of various sizes can be fitted to the same instrument. The chain attached to the curved extremity has also been made with a degree of curve in its links, so that, besides being more easily applied to a tumour in a deep passage, as the vagina or rectum, it adapts itself to the channel of the instrument much more easily than the straight chain can, and is less apt to be broken when drawn home. Finally, the mode of attaching the extremities of the chain is more simple, and as traction can, if necessary, be made on both ends at once, the power is much increased.

"The action of the *écraseur*," remarks Mr. T. SPENCER WELLS (*Med. Times and Gaz.*, Oct. 11, 1856), "though slower than that of the knife, is much more rapid than that of the ligature, and its action is direct; not indirect like the ligature, which only divides tissues by the process of gangrene it induces. The *écraseur* first condenses the tissues it acts on, and then divides them with extreme regularity. The wound does not appear at all bruised or torn. When it acts on an artery, it first divides the two internal coats, which are folded up in such a manner as to plug the vessel. The closure is assisted by the agglutination of the outer coats, before they are divided, and after separation has been effected, the closure is so perfect that the channel cannot be opened by blowing

forcibly through it. Experiments have been made at the Veterinary School near Paris, and the carotids of sheep have been divided without loss of blood. There is nothing surprising in this, when we remember how seldom severe gunshot, lacerated, or contused wounds bleed, that a limb may be torn off by machinery, and no blood be lost; and that *bites* are very rarely attended by hemorrhage. The lower animals have no occasion to apply a ligature upon the umbilical cord of their young; they simply bite it through, and the action of the *écraseur* is much more like that of biting than of crushing."

Dr. GEO. H. MACLEOD, formerly surgeon to the Civil Hospital at Smyrna, and to the General Hospital in camp before Sebastopol, in a recent paper (*Medical Times and Gaz.*, Nov. 29, 1856), has given so interesting an account of M. Chassaignac's mode of procedure in the principal operations in which he employs the *écraseur*, with the results he has himself observed in a tolerably extended experience in its use, that we are induced to quote what he says on the subject:—

"It may be said generally that the chief aim of the *écraseur* is to supplant the ligature; and that it fulfils all the objects aimed at by the ligature in a more rapid and satisfactory manner constitutes its claims to the attention of the profession. Its latitude of action, too, it will be seen, is much greater than that of any ligature we possess. A comparison of it with the ligature may be stated thus: In obviating hemorrhage it at least stands on an equality with the ligature, as it is found so 'hermetically and solidly' to close the vessels before dividing them, by an action on their coats similar to that of the ligature, that, though I have repeatedly seen the most vascular growths removed by it, I have never, except in one solitary case, seen a drop of hemorrhage. As to the speed of action, it is greatly preferable to the ligature, which has to ulcerate its way through a tumour by a process slow and tedious enough, its very slowness being essential to its success. Further, the ligature requires, in general, tightening, causes great pain and irritation, and leaves a large suppurating surface. The *écraseur*, on the contrary, so compresses the parts, that the resulting raw surface is of very limited dimensions. It enables us to administer chloroform during the whole proceeding, and thus to obviate pain; and, finally, it puts in our power an amount of force unknown in any ligature we possess. In the case of nervous persons or young children, the speed with which it acts, in comparison with the ligature, holds out many advantages. In a word, it in a great measure combines the benefits of the knife and the ligature. In its results, too, the *écraseur* contrasts advantageously with the ligature. Without claiming for it the advantages of causing greatly less subsequent inflammation and suppuration, of never being followed by erysipelas, or hospital gangrene, or tetanus, or purulent absorption, as is so energetically declared by Chassaignac, still I must honestly confess that the disturbance caused by it has been in general very slight, and the disagreeable results few, in the cases I have had an opportunity of observing. The mode in which the vessels are closed may well be considered to form a barrier to purulent absorption.

"The essential step necessary in using the *écraseur* is, obviously, to form a peduncle, if the part to be removed do not already present one. This is accomplished in various ways, according to the nature of the part. If, as in tumours on the surface, the part to be removed is flat, the best mode of procedure is to raise it up, if possible, from the subjacent tissues, and so to draw it out that several long curved needles can be passed in different directions across and under its base. A ligature is then tied behind these, and a neck thus formed for the chain. This method is preferable to transfixing the base of the tumour with a double thread, and pedunculating each lateral half. The great point is to get well below the base of the tumour.

"Again, if the mass be very large, or if it be so bound to the underlying tissues as that it cannot be raised up, or if it extend into a canal, as into the rectum, then the chain is first carried under the part in one of its diameters, and made to split it in two to its utmost depth, when each lateral part is treated as separate tumours, needles passed under it, a peduncle formed by means of a ligature, and a chain made to surround each. In a word, a peduncle is to be formed in the sound parts, beyond the disease on which the chain of the instrument can be made to operate. The ligature employed should be a hard compact one, as it is least apt to get entangled in the chain, and as few turns as possible of it should be used. When the chain is firmly in place, it may be as well to cut away the thread, to obviate all fear of inconvenience.

"As the skin presents by far the greatest resistance—a resistance which, at times, is too much for the chain to overcome, its division by the knife, on the line occupied by the chain, will often be advantageous. As this incision will be but superficial, no fear of hemorrhage need be entertained. The skin may at other times be reflected from the sides of the tumour, which will serve the double end of saving integument, when such is desirable, and enabling the chain to get better below the base. Oiling the chain previous to use makes a considerable difference in its facility of action.

"One word as to the mode of passing the chain through and beneath a part. A long and very curved trocar and canula, of a calibre greater than the chain, is made to pass below the part to be split. The trocar being withdrawn, a small elastic bougie, having the chain attached to it, is made to traverse the canula, which is then removed. In this way the chain is conveyed across and under the part. If the base of the tumour be so narrow and deep that a trocar could not traverse it without including much of the sound tissues on either side, then one trocar and canula of large dimensions is introduced from one side, and a lesser from the other, in such a way that the point of the smaller may become inclosed in the larger, and thus a canal of any acuteness may be formed for the passage of the chain.

"In the use of the *écraseur*, it is essential to proceed with slowness and great gentleness. The holding of the instrument firmly, so that it will not shake much during use is a matter of much moment to the avoidance of hemorrhage. Though in many operations it will be sufficient to allow half or even a quarter of a minute to elapse between each movement, yet to avoid all fear of hemorrhage in the case of very vascular growths, it is well to give a minute to each link. This apparent slowness, and the absence of that 'dash' so much coveted in the surgery of this country, and which this slowness prevents, is one reason why I believe the *écraseur* will not make so much way as it otherwise might in England.

"Let me glance at the mode of using the *écraseur* in particular operations.

"The great vascularity of the tongue, and the difficulty of suppressing bleeding from it when it is extirpated, presented an obvious case for the *écraseur*, and certainly in such instances it possesses several advantages over the ligature, which is the only mode of operation which, in such cases, can be said to compete with it. While the ligature takes days, the *écraseur* accomplishes the end in a few minutes. It needs no reapplication; it does not cause the presence in the mouth of a putrid mass for days, which, notwithstanding every precaution, will continually mix its products of decomposition with the food. It enables us to give chloroform, and thus obviate that intolerable pain which accompanies the ligature, and which is so severe as to have caused some to premise the section of the nerve.

"If the whole organ is to be excised, two instruments are required. The chain of one is introduced into the mouth by means of a needle passed through an incision below the chin in the same way as Cloquet applies ligatures for accomplishing the same end. The root of the tongue is thus encircled, and cut from above downwards. The second chain introduced by the mouth is laid in the incision made by the first across the base, and is made to divide all the attachments of the organ from behind forward. Half an hour is sufficient to accomplish this operation. Half of the tongue may be removed by passing two chains through the tongue at the angle of union of the diseased with the healthy

parts, and making one chain sever the parts from behind forwards, while the second cuts its way out at right angles to the first. A smaller part may be pedunculated by passing a couple of needles through the tissues behind it, tying a ligature round so as to form a neck, and applying the chain. A small chain and the curved instrument answer best for these operations. The case referred to by Mr. Wells as having been followed by hemorrhage, I saw, with him, and am convinced the result arose from the cause given, viz., the sudden jerk of the patient's head. If chloroform had been used this could not have occurred. I have reason to think that the attendant exaggerated the frequency of subsequent bleeding in these cases. The result in the case above referred to was ultimately most satisfactory.

"Castration can be accomplished by the *écraseur* in two ways. The diseased gland may be drawn out from its fellow; a ligature applied above it, so as to constrict the tissues, and by means of the chain the whole removed *en masse*. Or, if the part is voluminous, two chains are passed through a canula behind the cord and vessels at the point of section, and while one is made to divide the cord, vessels, and skin transversely, the other performs the perpendicular section by which the testicle is divided from its fellow. The loss of integument is apparently an objection to this procedure, but the results on this head were ultimately very satisfactory in the cases I have had the means of observing. There was not a drop of hemorrhage, and I did not learn that any of the subsequent nervous symptoms which follow the use of the knife showed themselves, notwithstanding that we might naturally suppose them more apt to follow. In this operation we must, on the whole, prefer the knife, from its greater rapidity, and the fact that, if properly used, none of those results against which the *écraseur* is supposed to provide, need be feared. If the *écraseur* be employed, a very long chain, and one of some strength is required to perform the vertical section, and if desired, the skin may be reflected to any desired extent before its application.

"I have seen circumcision performed on several occasions by means of the *écraseur*, but cannot see the object of its employment in such cases, as the knife accomplishes the object much better and more expeditiously. The hemorrhage, in no case of this sort, is an object worth taking so much pains to avoid. It is easily performed by separating the prepuce from the gland, either by drawing it forwards, and transfixing it with a double thread, whereby to form a peduncle, or, if practicable, introducing within the orifice a pair of forceps, between whose points and the glans the thread, and, finally, the chain, is placed. Adhesions between the prepuce and glans will prevent the use of the *écraseur*, and the laxness of the tissues make them very apt to get drawn into the canal of the instrument when the chain works home.

"Amputation of the penis is readily accomplished by means of the 'metallic ligature.' An elastic catheter being introduced into the canal, a needle is made to transfix both, a thread is tied behind the needle, and the chain made to divide the whole. The presence of the catheter prevents that obliteration of the canal which might result from the strong constriction exercised by the chain, while the integuments and mucous membrane lining the passage are so approximated by the action of the instrument, that hardly any wound results. Thus, then, there is no hemorrhage; the vessels are so closed that purulent absorption is obviated, and the wound may be said to be healed by the action which caused it. The difficulty of seizing a vessel in the stump of an amputated penis is well known to be, at times, very considerable, and this difficulty does not exist in the operation by the *écraseur*.

"The radical cure of varicocele is performed by Chassaignac as follows: The cord and veins being carefully separated, and the former drawn towards the middle line, three needles are made to transfix the parts between the cord and vessels, each needle being at a little distance from the other, and in a line with the axis of the vessels. Care must be taken that the needle lowest down does not transfix the tunica vaginalis. A ligature is placed firmly round the needle nearest the ring, so as to arrest the blood in the veins, and another ligature is twisted round behind the needles, so as to include them all, and form a peduncle. Thus far the patient should be kept in the erect posture, so as to render

the vessels full; he is now made to lie down, and chloroform being administered, the chain is applied behind the needles, and made to remove the knuckle included in the ligature. About half an inch of the veins is thus removed, and the resulting wound is brought together by suture. This operation takes from fifteen to twenty minutes. The rapidity and certainty of the result are the only advantages which this operation may be said to possess over the ordinary ones, while the extent of the wound is a disadvantage. I have not seen either hemorrhage, or erysipelas, or swelled testicle, nor yet troublesome erections, follow this operation when performed by the *écraseur*.

"The removal of piles is performed with wonderful facility by the *écraseur*. The tumour is seized by a vulsellum, and drawn out, when, if small, a ligature is simply thrown round its base, and the chain applied; or, if larger, a double thread is carried through its base, and tied so as to constrict it in two halves; or a needle may be left transfixing the base, and a ligature applied behind it. In many cases the points of the fingers will be sufficient to constrict the neck. Half a minute at least should be allowed between each movement, and ten or twelve consumed in the removal. When the anus is entirely surrounded by vascular piles, Chassaignac removes the whole at one grasp, by introducing a pair of his diverging forceps within the orifice, drawing it well out, and applying a ligature, so as to pedunculate the part, and then using the chain. A bougie must in this case be introduced within twenty-four hours, and that with great gentleness, to prevent tearing, so as to insure the patency of the gut, which is apt to be obliterated by the strong compression of the chain. The bowels should be kept quiet by opium for twenty-four hours. I have never seen any hemorrhage occur in the pretty numerous cases in which I have seen the *écraseur* employed; and I have seen a woman advanced in pregnancy thus with perfect safety relieved from large hemorrhoidal growths. The slowness and extreme pain and irritation, which are inseparable from the use of both the ligature and caustic, contrast disadvantageously with the operation with the *écraseur*, and the subsequent irritation of the bladder also appears much less when the chain is used. The very unfavourable state of the patient, the rapidity of the operation, and the bowels not being kept quiet afterwards, appear to me the causes of the fatal result reported in Liverpool. The bowels, in general, act with very little irritation, in thirty-six hours. In over a hundred cases, many of them of great severity, operated on in Paris, only one fatal result has followed, and in that instance from the breaking of the chain, the essential feature in the operation, as preventing purulent absorption—the cause of death—was wanting, viz., the closure of the vessels before their division. By means of the *écraseur* strangulated piles can be at once removed, and Chassaignac does not find a state of inflammation any counter-indication. Several patients operated on at the Lariboisière have returned to their work in three days; and in one case in which I saw an enormous hemorrhoidal tumour removed, no trace even of its site could be discovered a week after.

"I have never seen the *écraseur* used in prolapsus of the rectum.

"I have seen the lower part of the rectum removed for malignant disease twice, and in neither case was there any hemorrhage. It was thus performed: A long and much-curved trocar and canula was made to pass from the perineum, at a point anterior to the anus and external to the disease, up beyond the parts implicated in the gut, and outwards towards the coccyx posterior to the diseased tissues. The trocar being then withdrawn, the chain was passed along the canula and made to split the diseased mass in two after the tube was withdrawn. Long needles were then made to transfix the base of each lateral half, a ligature tied beyond them, and by means of two *écraseurs* worked simultaneously, both halves were removed at once. When we weigh the difficulties attending all operations of this kind, the great vascularity of the morbid parts, and the difficulty of commanding hemorrhage when it does occur, we must think favourably of the *écraseur* in such operations if they are to be performed at all. In three cases of extensive disease in which I have known the *écraseur* employed, one died of peritonitis, one has been well for eighteen months, and the third has also completely recovered.

"For the removal of polypi of the uterus or rectum the *écraseur* answers well.

The curved instrument and chain suits best. A very small chain, perhaps a wire, employed in the same way, will be found most convenient. The chain may either be introduced projecting in the form of a loop from the end of the instrument, or carried round the tumour before being attached. The inflammation and pain which follow the use of the ligature in these cases, and the presence for days of a strangulated and dead mass in the cavity are all avoided by the *écraseur*, while the hemorrhage, so troublesome, and even, at times, fatal, which may result from excision, is obviated. The method mentioned by Mr. Wells, at the Medico-Chirurgical Society, of tying the base of the polypus before excision, is, perhaps, better than even the *écraseur*. The weak state to which many patients are reduced before operation makes the avoidance of hemorrhage very desirable.

"I have not seen the os uteri excised by the *écraseur*, but having lately seen the operation done by scissors, I can appreciate its performance without hemorrhage. There was one patient at the Lariboisière who had been successfully operated on by the chain two and a half years before.

"Vesicular, erectile, and fungous tumours on the surface, on the labia and neighbourhood of the rectum, *nævi*, &c., are easily removed by the metallic ligature. The great point to be attended to is to raise them well up from the underlying structures to pass needles clear of them and under their base, to isolate them by a ligature, and to work the chain very slowly. The integument may be reflected from their side, both to save it and allow the chain to get well below them. Their extent, too, is thus better defined. The *écraseur* is not adapted for the removal of the *mammæ*. Hemorrhage can be here easily commanded, and when the skin is reflected, the operation is nearly accomplished.

"It seems absurd to lay open fistula in ano by the chain, but in those cases in which the external orifice is at a great distance from the anus, and we wish the track to heal by granulation, I have seen it advantageously employed.

"I have seen the chain used for the destruction of the intestinal valve in false anus, and its speedy result, together with the absence of any gangrenous action, which is so difficult to limit, and which attends Dupuytren's forceps, gives the *écraseur* certain advantages. An elastic tube is introduced through the parts some days before in such cases, so as to make a passage for the chain.

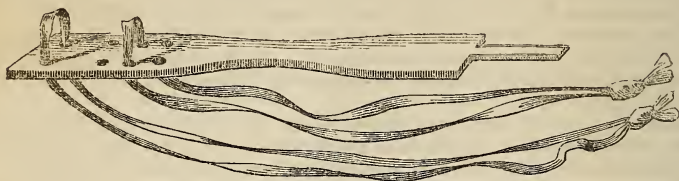
"In concluding these detached remarks, I would add that, whatever opinion may be formed of the *écraseur*, the absence of hemorrhage, which attends its use, is a fact which cannot be overlooked, and one which we may turn to good account. We may not in every case have the same fear of blood, expressed by M. Chassaignac; yet, it is very true that, independently of the harm its loss may cause in young children and weak persons, the power of avoiding it, and the incidental 'cutting,' which is the chief fear of a nervous patient, will often enable us to persuade persons to submit to necessary operations, who, if otherwise prevailed upon, might be seriously prejudiced by the mental alarm. I am, as much as any one, opposed to all 'unnecessary complications' in surgery, and particularly to any tendency to that mechanical surgery so rampant across the channel; but, though the boast of English surgery is that it accomplishes all operative interference with the forceps and scalpel, yet we may, in striving for simplicity, throw away an obvious advantage. To propose the performance of lithotomy or amputation with the *écraseur* is simply absurd; but I am convinced that, if restricted to its own sphere, and employed for those purposes to which it may legitimately be applied, the *écraseur* is a most useful addition to our armamentarium. For many purposes, I know of no means which can be thought to equal it, except the galvanic wire, which I had the pleasure of seeing in the hands of Professor Middeldorpf, of Breslau, adapted to the uses of surgery in such a way that, if it can be so brought into general use, it must supersede, in most cases, every other contrivance. That the *écraseur* will ever supplant the knife in most of the cases for which it has been proposed, I do not believe, but that it may in some I sincerely hope."

ART. IX.—*Apparatus for the Reduction of Dislocations of the Fingers or Thumb.* By RICHARD J. LEVIS, M. D., of Philadelphia. (With two wood-cuts.)

For the purpose of obtaining a secure hold of a dislocated finger or thumb, and of giving to the operator a powerful control of its movements during reduction, the writer has devised, and effectively used the contrivance illustrated by the accompanying cuts.

It consists simply of a thin strip of any hard wood, about ten inches in length, and one inch, or rather more in width. One end of the piece is perforated with six or eight holes, arranged as seen in the drawing. (Fig. 1.)

Fig. 1.



The opposite end is partly cut away, forming a projecting pin, and leaving a shoulder on each side of it. Toward this end of the strip, a sort of handle shape is given to it, so as to insure a secure grasp to the operator.

Two pieces of strong tape, or other material, about one yard in length, are prepared. One of these is passed through the holes at the end of the strip, leaving a loop on one side. The other tape is passed through another pair of holes, according as it may be a thumb or finger, to which it is to be applied, or varied to suit the length of the finger, leaving a similar loop. If a dislocated thumb is to be acted on, the second tape should be passed through the holes nearest the first. The ends of each separate tape are then tied together.

To apply the apparatus, the finger is passed through the loops. (Fig. 2.)

Fig. 2.



The loop nearest the first joint is then tightened by drawing on the tape, which is then brought along the strip to the opposite end, across one of the

shoulders, and secured by winding it firmly around the projecting pin. The other tape is tightened in a like manner, crossing the other shoulder, and winding around the pin in an opposite direction, when, for security, the ends of the tapes are finally tied together.

By this arrangement is gained a very simple means of making powerful extension; a leverage power by which the dislocated phalanx may be made to follow the rounded surface of the opposite articulation; and a power of rotating it while extension is being made, so as to turn one of the small condyles of the luxated phalanx at a time, under the unyielding lateral ligaments of the joint.

If properly applied, without the slightest painful constriction of the finger or thumb, this apparatus is perfectly unyielding to any force applied in reduction, and it must break rather than slip from its hold.

The control thus given to the operator, with its ready preparation at an emergency from materials everywhere at hand, give the apparatus decided advantages over the simple traction of the "clove hitch," or the more expensive and complicated devices which have been used for the purpose.

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ART. X.—*Case of Poisoning by Strychnia.* By H. L. GIVENS, M. D., of La Grange, Kentucky.

I WAS requested, on the evening of the 17th of September last, to see a young man on whom sentence of Court had just been pronounced for a misdemeanor. Being a man of cultivated intellect and very sensitive, and feeling deeply the stigma or disgrace the sentence entailed, he determined on self-destruction, and had just taken two ounces of tinct. opii. I found him labouring under considerable excitement and perturbation of mind, with a full, frequent pulse, and vomiting freely. As no coma or lethargy had supervened, I soon discovered that the frequent efforts at emesis, which I encouraged, would relieve him. I remained but a short time, and left him doing well.

In about an hour after, I was informed that he was suffering with violent convulsions or spasms. I immediately visited him, and found the muscles of the throat, neck, chest, and arms, in violent spasmodic action; while the inferior extremities remained in a passive, straight, and rather rigid condition. Knowing that the spasms did not result from the effects of the opium, I suspected from his symptoms that he had taken strychnia. In response to my inquiries whether he had or not, he gave an evasive answer, saying that he wished to die, and that nothing would save him now. But on pressing my inquiries, assuring him that I desired to make an effort to mitigate the violence of the pain and spasm, as there was little or no prospect of arresting the dis-

ease, he assented, stating that, immediately after ascertaining that the laudanum had failed to produce the effect he desired, he had swallowed two large pills of strychnia, which he had procured for the emergency. The case being urgent, and having some tartaric acid with me, I immediately gave two large draughts of it, in the interval of the spasm, with the view of neutralizing the strychnia, which was followed, so soon as they could be procured from the druggist, by tablespoonfuls, about every half hour, of aqua camphora, alternated with the preparation and doses, as per recipe of Orfila, of ether, ol. tereb., with sacch. alb., and aqua pura, taken at irregular intervals, as deglutition was attended with great difficulty, and the spasms violent for four or five hours, and of a tetanic character.

The intervals gradually grew longer, and, in seven or eight hours, entirely subsided, leaving him quite prostrated, with considerable distension and tenderness of the epigastrium, stricture and soreness of throat, and general muscular system. An aperient being clearly indicated, I ordered two ounces of castor oil, to which was added thirty drops of spirits of turpentine, which operated well.

The indications of gastro-enteritis gradually subsided. But the inflamed and abraded membrane of the throat was attended with hæmoptysis for three or four days, which gradually subsided under the use of frequent mucilaginous draughts of slippery elm, and, in less than a week, he had entirely convalesced, save a little soreness of throat and the general muscular system.

It will be proper to add here, that from subsequent inquiry, I learn from the patient that there was not less than ten or twelve grains of strychnia in the two pills he took; but the stomach being irritable, and vomiting occurring shortly after they were swallowed, the greater portion may have been ejected, though sufficient was retained to produce, for hours, violent convulsions like electric shocks passing through the chest, jerking the whole chest and body up so that the shoulders would strike and rebound; neck drawn, with constantly grappling of the same by his hands, indicating strangulation, or asphyxia; with the hollow of the feet in each of the inferior extremities drawn inward. During the whole of the spasms, the heart beat feebly, though regularly; eyes open with a vacant stare; pupils contracted; palpebra passive, or apparently paralyzed. When roused up from an apparent state of lethargy, the patient was perfectly conscious and sane, answering questions rationally when pressed to do so.

It is not my purpose, were I even prepared, to enter into a physiological dissertation as to the *modus operandi*, or the peculiar effects of strychnia on the human system, as to whether the poison impresses its pernicious effects by a direct action on the spinal cord through the capillaries, as maintained by Stilling and physiologists generally; or, as more recently contended by Professor Harley, of the University College, London, that the poison, to produce convulsions, must be first absorbed and conveyed to the spinal cord through the bloodvessels. Each position may be maintained. The first, in its primary effects, and the second, in its ultimate results; and this, in my

judgment, depends on the quantity taken, and the length of time it remains in contact with the delicate mucous coat of the throat and stomach.

If the quantity is large, its primary impression on the sensitive tissues produces, independent of absorption, violent tetanic convulsions through sympathetic action of the nervous tissues, which is followed speedily by the absorption of the virus of the excited and irritated absorbents of the part in contact with the poison, which, if not neutralized or removed by timely remedies, renders the case still more critical and hopeless, where the poison has passed through the circulating fluids.

How far the poison has been absorbed or taken in the circulating mass, in this case, it is difficult to decide; or, to what extent, if any, the remedies brought to bear in this case, jointly or separately, tended to conduct it to a favourable issue, remains for further inquiry and investigation—such cases being few and far between in this section, it being the first of the kind in which I have been called on to prescribe, in a regular practice of thirty years. Yet its rarity should not plead an apology for passing it by, especially as attention is now directed to the investigation of the nature and peculiar action of this poison on the human system, and to the endeavour to discover some prophylactic by which its otherwise fatal influence may be counteracted.

LA GRANGE, KY., Oct. 15, 1856.

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ART. XI.—*Rupture of the Uterus—Gastrotomy successfully performed.*

By JOHN H. BAYNE, M. D., of Prince Geo. County, Maryland.

ON the 25th day of June, 1856, I was requested to visit Christina, a servant woman, 25 years of age, robust constitution, who had been in labour two days with her fourth child. Midwife present during this time. Immediately after my arrival, I proceeded to make examination per vaginam. The os uteri was fully dilated, and the vertex of the head could be distinctly felt presenting very high up. Patient complained of having experienced some hours previously an excruciating pain in the epigastrium, accompanied with a peculiar tearing sensation. There was then an entire cessation of pain, and of all expulsive uterine efforts. Pulse 130 per minute. Difficulty of respiration, and prostration. She soon became comatose, with great tendency to collapse. The head of the fœtus seemed to be rapidly receding, and in a very short time the entire contents of the uterus escaped into the peritoneal cavity. Child could now be very distinctly felt externally through the parietes of the abdomen, and appeared to be very high up, mechanically pressing against the diaphragm, which rendered the respiration still more laborious. Diagnosis was now easy. On again introducing my hand into the womb, I found an extensive laceration had taken place in the anterior portion of the

fundus. As it seemed impracticable in this case, on account of the complete disappearance of the foetus, to introduce the hand through the rent and deliver per vaginam, I communicated the nature of the case, and suggested gastrotomy as the dernier resort. The operation was soon determined upon, and as the woman's life was in the most imminent danger, only time was allowed to obtain the assistance of those medical gentlemen who resided very near the residence of the patient. Drs. Heiskell, Wood, and Hill were promptly upon the spot, and with their aid, and without any anæsthetic agent, I proceeded to perform the operation in the following way. After adjusting the bedstead on which she was lying, I made an incision with the convex bistoury, beginning at the umbilicus in the medial line, and terminating near the pubis, dividing the parietes of the abdomen down to the peritoneum. It was then cautiously opened, and the finger used as a director to avoid injury, until the peritoneum was divided. As soon as the abdominal cavity was opened, there was a sudden gush and escape of at least one quart of sero-sanguineous fluid. There was no hemorrhage. A very large foetus was now exposed to view, which was removed with as much celerity as possible.

The abdominal cavity was then cleansed. The intestine at this time *in situ*. Womb at the rupture thin, and the laceration jagged and irregular. The lips of the wound were now approximated and kept in contact by interrupted sutures and adhesive straps, observing to leave the depending part of the wound free to allow the escape of matter.

The incision was next covered with lint spread with simple cerate, over which was placed a large compress, and a body bandage completed the dressing. The operation subsequent to the incision and extraction of the foetus was completed by Drs. Wood and Heiskell in the neatest and most skilful manner.

The patient was then removed to bed, and a stimulant administered. In a short time the heart reacted, respiration improved, coma subsided, and her condition was rendered so comfortable as to inspire her with strong hopes of recovery. For two days after the operation no untoward symptom occurred. On the third day fever set in with a tumid abdomen and pain on pressure, and considerable peritoneal inflammation. But under the influence of the antiphlogistic regimen, antimonials, calomel and opium, purgatives, enemas, &c., all inflammatory action subsided, and the patient soon seemed to be convalescent. Complete cicatrization took place in twelve days, and the case continued to progress favourably. A dark grumous, purulent, and offensive discharge continued per vaginam for several weeks unaccompanied with irritative fever.

About three months before the patient's last confinement she was attacked with anasarca of the feet and ankles, which gradually extended up the legs and thighs, encroaching upon the abdominal and thoracic parietes; at last involving the upper extremities, apparently invading the whole exterior structure. The œdema excited no great uneasiness, as it was attributed to

the mechanical obstruction produced by the gravid uterus pressing upon the iliac veins, and preventing a free return of blood.

*Remarks.*—There was in this case some deviation from a normal condition of the pelvis. The antero-posterior diameter was less than the standard, and the capacity of the pelvis was evidently less than ordinary, and from this circumstance, her labours had always been protracted, continuing from two to three days; then there seemed also to be some softening of the substance of the womb which predisposed to this accident.

The selection of gastrotomy was made in this case on account of the rapid contraction of the uterus occurring after the escape of the foetus, and rendering it impossible to reach the child; deliver through the laceration and per vias naturales. It appears to me the extraction of a full grown foetus through the rupture would always prove very difficult, and even more dangerous than the operation which was adopted.

Would not a prompt performance of gastrotomy in cases where this formidable accident has occurred diminish the mortality?

P. S. It is now two months since the operation, and the patient is perfectly well and able to resume her duties as cook.

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ART. XII.—*Gutta Percha Bougie broken in the Bladder; Lithotomy for its removal; Recovery.* By R. T. MAXWELL, M. D., of San Francisco, California.

MR. W. M., æt. 38, called upon me at 1 A. M., June 20, 1856, stating that he had broken a gutta percha bougie in the bladder; the accident had happened about an hour before, and the pain already produced was excessive. The patient had suffered from a stricture for several years, and, at the suggestion of a surgeon who had formerly treated him, had been in the habit of passing a bougie occasionally, and had always succeeded in doing so without difficulty.

A period somewhat longer than usual having passed without the use of the instrument, he had that day purchased, of an apothecary, a bougie which he recommended highly, made of gutta percha, by a manufacturer: size about No. 9.

The instrument was introduced slowly, and carefully, after retiring to bed, and was allowed to remain undisturbed about half an hour; when upon withdrawing it with gentle traction, it parted, and about three-eighths of its whole length, or  $4\frac{7}{8}$  inches, was left in the bladder. Palliatives were used that night, and an examination by the sound made next morning with difficulty, as the irritation of the bladder was already very great, the viscus contracting

spasmodically upon the foreign body contained in it, and the urine passed very frequently in small quantities, mixed with blood, and thick, ropy mucus.

It was impossible to detect the bougie, softened as it was by the warmth of the body, and after several ineffectual attempts, I decided to dilate the urethra as much as possible, to administer diluents, and by means of anodyne enemata, and warm fomentations to quiet the irritation as much as possible, hoping that the point of the bougie might engage in the canal, and by the force of the urine accumulating behind it, might be forced within reach.

Besides having this object in view, the patient's constitution had been much impaired by repeated attacks of intermittent fever, and he was in a very unfit condition for the operation of lithotomy.

The state of the bladder was such, that at no time would it contain more than three ounces of fluid without paroxysms of pain too great to be endured.

The profuse discharges of blood and mucus, gradually diminished under treatment (every care being taken at the same time to improve the general health), although the urine continued to be surcharged with the earthy phosphates.

All efforts to get rid of the bougie otherwise than by the knife, proving hopeless, I determined to resort to it, and on the morning of July 14, I performed the lateral operation for stone, using the staff, and a gorget of small size, only partially dividing the prostate so as merely to allow the introduction of one finger. The foreign body could now readily be felt, and by means of a long and slender polypus forceps, two portions were successively removed, each thickly covered by a crystallized phosphatic deposit.

By adapting the ends to each other, they evidently constituted the whole of the portion of the bougie left in the bladder, and measured, as stated above, four and seven-tenths inches.

The bladder was well washed out with tepid barley water, and upon careful search, it being ascertained that no fragments of the concretion were left behind, the patient was put to bed.

Three weeks after the operation, the urine passed solely by the urethra, and on the thirty-fifth day the wound had healed, and the patient was able to attend to his ordinary business, his progress toward cure having been uninterruptedly good.

The most remarkable facts presented in this case are, that a material of such great tenacity, should so readily have separated in the withdrawal from the urethra, and more particularly that the retained portion should again have been broken by the force of the contractions of the bladder—the broken end of the portion withdrawn having exhibited no indication of a flaw, or other imperfection.

The detail of the case may, it is hoped, serve to warn the profession generally, against the use of so unreliable a material, for the purposes to which it was here applied.

ART. XIII.—*Veratria and Morphia in Incontinence of Urine.* By THOS. KENNARD, M. D., Assistant Physician to the Blackwell's Island Hospitals, New York.

CASE I.—Moses Kitten, æt. 28, white, engineer, native of New York, was admitted into the Penitentiary Hospital, Blackwell's Island, May 12, 1856, suffering from delirium tremens, with apoplexy, followed by complete paralysis, which kept him in an insensible state for three weeks, during which time he had to be fed with a spoon. On recovering from this, he had no control over his sphincter muscles, discharging both feces and urine involuntarily, for which he was treated during June and July without avail. On the 8th of August he was placed under my charge, when I ordered him to rub the perineum three times daily with the following ointment: R.—*Morphiæ sulphatis*, *veratria*,  $\text{āā gr. x}$ ; *axungiæ*,  $\text{℥j}$ .—Ft. ung. This treatment was continued three days, when no further inconvenience was experienced, and the control over the sphincters was as perfect as ever before.

CASE II.—John Kipp, æt. 80, native of New York, was admitted to the hospital at the Almshouse, Blackwell's Island, on the 20th of September, 1856, for contusion from a fall. On examining him, and finding his clothes wet, I learned that he had had no control of his sphincter vesicæ for eight years, and was wholly unable to prevent involuntary discharges. Being unable to assign a positive reason for his state, I ordered him to rub the morphia and veratria ointment on the perineum three times daily, and in one week from commencing its use no further trouble was experienced.

CASE III.—John Flynn, æt. 56, native of Ireland, labourer, was admitted to the Almshouse Hospital, September 15, suffering from paraplegia of four years' standing, two years of which time he has had no control over his bladder, but passed his urine involuntarily. I ordered strychnia  $\text{gr. } \frac{1}{15}$  twice daily for the paralysis, and to rub the perineum three times daily with the morphia and veratria ointment. Two weeks from this time he was cured of the incontinence of urine, and went on rapidly improving till the end of a month, when he was discharged, nearly well.

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ART. XIV.—*Case of Poisoning from Wine of Colchicum.* By THOS. KENNARD, M. D., Assistant Physician to the Blackwell's Island Hospitals, New York.

MARY MULLEN, widow, æt. 56, a native of Ireland, came under my care at the Almshouse, Blackwood's Island, New York City, on the 23d of Septem-

ber, 1856, suffering from chronic rheumatism, for which I ordered her *vin. sem. colchici* ℥j, with directions to take twenty drops three times daily. Twenty-four hours afterwards I was called to see her, and was much surprised to find her in an extreme state of prostration, suffering from excessive nausea and vomiting, with slight purging, heat and burning in the fauces, inordinate thirst, cold, clammy skin, feeble pulse, violent supra-orbital pain, and distressing gastralgia, with very anxious countenance. On inquiry, I found that she had swallowed the ounce of wine of colchicum in twelve hours, and, shortly after, had been seized with violent and profuse vomiting, which had gone on increasing until I saw her. I applied a large sinapism over the epigastrium, and gave subnitrate of bismuth, with opium, till vomiting ceased, and then ordered mucilaginous drinks, combined with a warm cataplasm over the region of the stomach.

*September 25.* Patient slept but little during the night; has been vomiting at intervals, and still seems in a hopeless condition from the violent gastritis and continued retching. I renewed the use of bismuth and opium, and, after many vain attempts, finally succeeded in checking the vomiting and securing sleep.

*26th.* Patient seems much easier, but still is troubled with much retching and occasional vomiting, with constant thirst, slight cough, and continued pain over the stomach. The same treatment was continued, and she went on improving till September 29, when she was discharged, well.

## REVIEWS.

ART. XV.—*A Treatise on Therapeutics, and Pharmacology or Materia Medica.* By GEORGE B. WOOD, M. D. Late President of The American Medical Association, &c. &c. &c. Two vols. pp. 840, 901. Philadelphia, J. B. Lippincott & Co. London, Trübner & Co. 1856.

No department of medicine has advanced more rapidly during the last fifteen or twenty years than Therapeutics. The explanation of this is evident. Physiology, pathology, animal chemistry, and kindred sciences have been rapidly progressing for the same period and longer. They are the natural predecessors of therapeutics. The latter can advance only when the former precede. Progress in therapeutics is the natural result of a more intimate acquaintance with the history and pathology of disease, and the physiology of the human system. Among those who have successfully cultivated this branch of science, Dr. Wood, of Philadelphia, has earned a foremost place. Few men upon this side of the Atlantic have obtained a wider reputation, or more justly earned the reputation they enjoy. It has been said that a man's greatest rival is himself. This remark is especially true of Dr. Wood. As a Lecturer upon *Materia Medica* and Therapeutics for thirty years, before one of the largest schools in this country, as the author of an elaborate *Treatise on the Theory and Practice of Medicine*, as one of the authors of the *United States Dispensatory* (a work of whose excellence it would be needless to speak), and as one of the attending physicians, for twenty years, of a large Metropolitan Hospital, he has won a reputation of no ordinary character. A man with such opportunities, and such facilities, and such a reputation, finds in himself his strongest competitor. To say that in the work, whose title we have placed above, he has fully equalled his reputation and justified the expectations of the medical community, is ample praise; and we rejoice that we can say this without qualification. We have been looking for the appearance of this work for some time, and now have the satisfaction of chronicling its publication. The reasons which led Dr. Wood to its preparation, are modestly stated by him in the preface, in the following language:—

“In preparing the present work for the press, the author claims to have been actuated, in part at least, by motives higher than those of personal credit, or pecuniary advantage. Though he pretends to no insensibility to these ordinary influences, he believes that he is obeying a call of duty in laying before the profession those results of his research, experience, and reflection upon the subject of therapeutics, which have heretofore been confined to the narrower limits of classes of medical students. His former lectures constitute the chief substance of the present treatise, though considerably extended, and much elaborated. Perhaps he may be laying himself open to a charge of overweening self-estimation, in supposing that he can add to the existing mass of knowledge, or improve existing views in this department of medicine, in a degree which may justify the publication of a book like the present; but he is unwilling to leave the world without giving some degree of permanency to what he has so long taught, and consoles himself with the consideration that, should the work prove of less value to the profession than he ventures to hope or anticipate, it is not likely to do serious injury, and, at the worst, will be merely superfluous.”

The work is not, like too many which come from the American press, a compilation, but an original treatise. It is not written for practice, but from practice. Every page bears the impress of the author's research and observation. We do not say that every part of it will meet with unqualified approbation. We do not say that it contains no theories or statements which some will not criticize, but we do say, that whatever statements are made, they are evidently the result of the author's experience and observation. Dr. Wood has not given us the notions of another man, but his own. He has not treated us to a theoretical dissertation upon the uses of medicines, but has given us, in simple and unadorned language, the results of a long professional life devoted to the clinical study of therapeutics. This alone is enough to stamp the book with unusual value. We have books in abundance upon all sorts of medical subjects, therapeutics included, written by those who have nothing else to do than write. Only now and then do we come across a medical work, which is the result of close observation and long experience. In the work before us we find one that bears the stamp of the true coin.

We have said that it is written from personal observation; and so it is. Yet the labours and observations of others are constantly referred to and frequently quoted. No attempt is made by Dr. Wood to conceal the sources of his knowledge. He is always willing to give due credit to others. He is too rich in himself not to acknowledge all his indebtedness. We are, moreover, glad to notice that in his quotations, Dr. Wood has drawn largely from American sources. This is right and just. We have sometimes thought that American professional writers are unwilling to quote their own brethren, and prefer to cross the water and cite English, French or German authorities. Dr. Wood quotes freely from transatlantic authors, but at the same time, he does not hesitate to quote American observers in every part of the country.

A treatise on therapeutics, such as Dr. Wood has given us, supplies a desideratum in our medical literature. It is written from the point of view of therapeutics, and not from that of the *materia medica*. It differs from the *United States Dispensatory* in not describing drugs with that minuteness, which is essential to the latter work. Yet, while it does not contain minute descriptions of drugs, with detailed accounts of their chemical constituents and pharmaceutical preparations, it presents more fully and thoroughly than the *Dispensatory*, the therapeutical applications and uses of each drug. It differs, moreover, from the author's *Treatise on Theory and Practice* in not containing long and detailed descriptions of diseases; it describes, however, more fully than any work on theory and practice can do, the way in which every drug should be used for the relief of the diseases to which it is applicable. It is, in fact, a complement both of the *Dispensatory* and of the *Treatise on the Practice of Medicine*. A brief and sufficient description is given of the sensible and chemical properties of each article, but the largest space is devoted to an account of its physiological action upon the system, its various therapeutical applications, and of the best mode of its administration.

We should like to give a complete account of the whole work, but a sketch only of what it contains is the utmost we can offer. After doing this we must refer our readers to the work itself.

The *Treatise* is in two volumes, containing 840 and 901 pages respectively. It is divided into two parts. The first part is devoted to general therapeutics and pharmacology; the second to special therapeutics and pharmacology. The first part is in reality an introduction to the second, and occupies only ninety-one pages of the first volume. It contains an exposition of the author's

views of the *modus operandi* of medicines; of the influences which modify their effects, such as age, sex, idiosyncrasy, habit, etc., and of certain theories with regard to modes of therapeutic action. The forms in which medicines are used, and the parts to which they are applied, and the manner of applying them, are also described. This part closes with a classification of medicines, and thus prepares the way for the second and more important portion of the treatise, on special therapeutics and pharmacology.

The classification which Dr. Wood has adopted, is not based upon the botanical or mineralogical relations, or chemical properties of drugs, but upon their relations as therapeutic agents. The physiological and therapeutical action of a drug is made to determine its position as a member of one class or another. Accordingly, remedies are divided into two great classes, called systemic and non-systemic remedies. "The former division embraces the great body of remedies, the latter includes only two small classes." Systemic remedies are subdivided into general remedies, such as stimulants, sedatives, alteratives, etc., and into local remedies, such as emetics, cathartics, diuretics, &c. Astringents, tonics, narcotics, and all drugs, which act upon the circulation and the nervous system, are treated of under the head of general remedies. Those which affect some one part or organ specially, and influence the whole system indirectly (such as emetics and cathartics) are classed under local remedies. Non-systemic remedies are stated to be those which act on bodies foreign to the system, and embrace only two small classes, namely, antacids and anthelmintics. Under the subdivision of local remedies, Dr. Wood has placed several classes, which are not usually found in similar classifications, at least not with the same names. Thus he has made a class of cholagogues, of uterine motor stimulants, and of protectives. When a remedy has several powers, it is treated of most thoroughly in connection with its most distinctive property, and it is again treated of in other classes, to which its therapeutic properties ally it. Hence the same remedies are occasionally considered in different places, and under different heads.

Dr. Wood does not claim for this classification that it is new or that it is free from objections. It cannot be called a scientific one, yet it possesses many practical advantages, which approve themselves to our judgment. We wish, however, that Dr. Wood had not undertaken to compel all remedies into some class or other. We should have been glad to see in the work a class of *unclassified*. We mean that there are some well-known, powerful, and valuable drugs, which, in the present state of our knowledge, cannot properly be ranked under any class. Thus, we do not know enough of the *modus operandi* of mercury or iodine, arsenic or colchicum, turpentine, or nitrate of silver to attach them to any class. We may call them alteratives, or give them some other name, using the expression, like the  $x$  of the algebraist, to express an unknown power. But if this is all we mean by such a term, it is better to use a word which implies no theory. It is better to put those remedies, whose action is imperfectly understood, in a class by themselves, without any name. Dr. Wood has placed creasote and copaiva among diuretics, turpentine among stimulants, nitrate of silver among tonics, electricity among diffusible stimulants. We know very well that copaiva and creasote act upon the kidneys, that nitrate of silver will sometimes improve the appetite, turpentine and electricity stimulate the heart, yet copaiva is not generally used as a diuretic any more than nitrate of silver is generally used as a tonic. It would be simpler to discuss such articles, as well as mercury, iodine, arsenic, and some others, in a class without any name, which, as we have already said, implies no theory of their action. But, on the whole, the practical ad-

vantages of Dr. Wood's plan, with the single exception we have made, render it preferable to the classification of Pereira, or the ingenious one of Mr. Headland.

The description of each class is preceded by several pages of introductory remarks, of a practical character, which point out the therapeutic action and indications of the whole class. In these prefatory remarks, some of the most valuable observations in the whole treatise are to be found. We should like to point out many of them, as well as some of those, occurring elsewhere, but have not space to do so, and must content ourselves with calling attention to a few points.

Before doing so, however, let us remark that the work is not a treatise upon drugs alone. Physicians, as well as the public, have been too much in the habit of regarding drugs as the most important of therapeutic appliances, if not the only ones. Treatises on therapeutics often describe drugs alone, or give such a meagre account of other remedies, that the student is apt to look upon those other remedies as of little value. Dr. Wood has not fallen into this error. Under one head or another, he treats at length of the physiological action and the therapeutical use of cold and heat, of diet, climate, exercise, electricity, mental influences, regimen, hygiene, &c., and points out their value as means of treatment. Even the influence of artificial somnambulism, or what is commonly known as animal magnetism, is alluded to, and the slight value assigned to it that really belongs to it. Electricity is discussed in an article of no less than fifty four pages. The account is thorough, discriminating and practical, putting the reader in possession of the latest discoveries, and stating its use in special diseases. At the close of the article an allusion is made to the elimination of metallic substances from the system, by means of the decomposing agency of galvanism. This method has become very popular, of late, among charlatans, under the name of "Electro-chemical Baths." Dr. Wood alludes to this method, but does not express a decided opinion as to its practicability. We will only say by the way, that we have satisfied ourselves, by numerous carefully conducted experiments, that metallic substances cannot be withdrawn from the system, by a galvanic current thus applied.

Water, the one remedy of the hydrotherapists and their panacea for all human ills, is fully described as a tonic, a sedative, a diaphoretic and stimulant. Its therapeutic application, in the shape of the cold bath, hot bath, tepid bath, freezing mixture, fomentation, etc., are pointed out. We are glad to meet with a good description of the rational use of water, as a therapeutic agent. There has been a great want of precision among medical writers, who have written upon this subject. Dr. Wood has shown us the true method of its employment, and indicated the scientific rules which govern its application.

Diet is treated of chiefly under the head of indirect depletion. In the discussion of it, the common generalities with regard to the importance of diet are avoided. It is shown to be an efficient therapeutic agent. In the few pages which are devoted to this subject, the different kinds of diet which are appropriate to different conditions of the system, are indicated with precision and good judgment. We wish that our author had gone more into detail upon this matter than he has done. The subject deserves a careful and detailed account from the pen of every writer on therapeutics.

We have not time to speak critically, as we should like to do, of many important observations which Dr. Wood has made, and which are to be found scattered through the book under various heads. Most of those, which we

had marked for comment, must be omitted. We think it desirable, however, to call the attention of the profession to his statement, with regard to the use of the oil of turpentine in typhoid fever. Our own experience of it, in the way he recommends, has not been large. So far as we have tried it, our observations confirm his. The statement of so careful an observer ought not to be disregarded, and if the experience of the profession should bear out those statements, the oil of turpentine will prove a valuable adjuvant to our means of treating a most formidable disease. We can best present these views in Dr. Wood's language; and the quotation will serve as a fair sample of the author's style and way of treating a subject:—

“Though the oil may be of some use as a mere stimulant in this disease, (typhoid fever) it is, in that respect, of but comparatively little value, and cannot be depended on to the exclusion of a wine whey, carbonate of ammonia, and nutritious aliment, in low conditions of the fever. But the oil will accomplish what these cannot. It acts most happily in stimulating the diseased patches of Peyer's glands, and the isolated glands of the same kind, whereby the softened and disorganized matter is more readily thrown off, and the ulcerated surfaces disposed to heal, when they might otherwise be unable to do so. The remedy, therefore, is to be given at the period during which the discharge of the softened matter is going on, and ulcers are forming, or in existence. This is usually, I believe, about the middle, or towards the close of the second week. Before this time I count upon no material service from the oil. It is now that the tongue becomes *dry*; and the occurrence of the dry state of the tongue in a decided degree, is the signal for commencing with the use of the remedy. I give it usually in doses of ten drops every two hours, but sometimes increase to fifteen or twenty drops. At the end of twenty-four, or at the furthest of forty-eight hours, there may very generally be seen a return of moisture with a white fur on the surface of the tongue at the sides, for its whole length leaving the surface in the middle still dry and often cracked. With this amendment, there is often also a diminution of the tympanites, a cooler and moister skin, and a less frequent pulse. The same change goes on till the whole tongue becomes moist, and covered usually with a whitish fur, which then gradually disappears, commencing from the top and edges. Sometimes, even when there has been no dryness of the tongue in the case, I have found the oil to act favourably in ameliorating the symptoms; and frequently, when the disease has appeared to linger in its advanced stages, and, though not severe, to show a perverse disposition to hang on to the patient, I have seen it almost immediately enter into convalescence under the use of the remedy. Again, when the case is marked in its progress by the cleaning of the tongue by flakes or in patches, leaving a red and smooth surface, as if deprived of the outer layer of the epithelium and papillæ, and when the surface of the tongue, whether completely or only partially cleared, instead of remaining moist as it does in favourable cases, becomes very dry with an aggravation of the general symptoms, I take it for granted that there has been a corresponding unfavourable change in the intestinal ulceration, indicating the use of the oil. It is precisely under these circumstances that, previously to my original use of the oil, I had seen a majority of the cases that came under my notice prove fatal; and, since the use of it, only two. I do not claim for the oil any specific power over typhoid fever. It will not prevent death from intercurrent pneumonia, or meningitis, or various other sources of mischief; but I do think, as the result, too, of great experience in the disease, that so far as the mere affection of the intestinal glands and its direct consequences are concerned, it will vastly diminish the chances of a fatal issue. The reason why, in the special condition of the tongue last described, the favourable effects of the remedy may be almost certainly calculated on, is that at the commencement of the cleaning process, the proper idiopathic disease has about run its course, and would almost certainly end well, but for an unfavourable change in the condition of the ulcerated surfaces; and whatever, therefore, will favour the healing of these, will in all probability secure a favourable termina-

tion. I have been more particular in this account of the use of oil of turpentine in enteric fever, because I have great confidence in the efficiency of the remedy myself, and wish to prevail on others to use it by showing the grounds of this confidence, and pointing out the precise circumstances under which, according to my experience, it should be employed." (Vol. i. pp. 563-5.)

The indications and contraindications for the use of tartar emetic are admirably presented. We wish, however, that the dangers of giving it to infants had been urged in more decided language. Its powerfully sedative and depressing action upon the system during the first year of life, is so great, that we are satisfied death has sometimes followed its incautious administration to children of a year old and younger. So great is this danger, that we should be inclined to prohibit its use altogether in persons of so tender an age. The heroic treatment of pneumonia and inflammatory affections of the chest, which was brought into vogue by Rasori and others of the Italian school, is properly condemned. "I am bound to express my own conviction," says Dr. Wood, "that the practice is on the whole not to be recommended." In saying this, we believe he expresses the conviction of most of our judicious practitioners. At the same time, the control of tartar emetic over pulmonary inflammation is fully admitted and explained, and its judicious use advised.

Among the subjects which we had marked for comment, are chloroform, alcohol, the use of heat as a stimulant, cod-liver oil, the use of quinia in rheumatism, travelling and exercise as therapeutic agents, and others. But we must bring our remarks to a close, and refer our readers to the book itself for Dr. Wood's views with regard to these and all other remedies of the *materia medica*. The latest reliable discoveries in therapeutics are incorporated into the work, and described with the exactness and precision characteristic of the author.

Dr. Wood closes his preface with the remark that this work will probably be his last professional treatise. "Advancing years warn him that the time is fast approaching when a failure of faculties, or the termination of life will render labour in any new field impracticable." We fervently hope that in both these points he is mistaken. Dr. Wood has not yet exhausted the stores of his experience. We trust that a hale and hearty old age awaits him, during which he may have the health and the leisure to draw from those stores, both for the benefit of the profession and the community.

In conclusion, let us commend the treatise heartily to the medical profession, and add as a parting word that the typography of the book is excellent. It is printed with a type and on paper, which is worthy of the subject, and highly creditable to the publishers.

E. H. C.

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ART. XVI.—*Human Physiology, Statical and Dynamical; or the Condition and Course of the Life of Man*. By JOHN WILLIAM DRAPER, M.D., LL.D., Professor of Chemistry and Physiology in the University of New York. Illustrated with nearly 300 wood engravings. New York: Harper and Brothers, 1856.

THE work whose title is at the head of this article, has been but lately issued from the press, and comes from the pen of one of the most original thinkers in this country. Before the work reached us, we felt confident that

it would contain much that was original and novel; and in this we have not been disappointed; perusing it with interest. But we must say that many of the new views, in our opinion, will not serve to advance the interesting and difficult study of physiology; and I might add, that it is likely to teach the student many things that he will have to unlearn, if he pay due regard to the facts daily developed in experimental physiology.

Everything that is novel in connection with the subject of physiology is of interest to the student of medicine, for there is scarcely any branch of his studies so attractive; professing, as it does, to make clear the inner structure of that body, which it is his aim to keep in order, and to repair when damaged.

"To the medical profession as matters now stand, nothing is of more importance than the discrimination of physiological knowledge. Empiricism could not flourish as it does, if the structure and functions of the body of man were understood. . . . It would not only tend to a repression of empiricism, but would also exert an effect in raising the standard of acquirement among medical men themselves. That a great revolution is impending in the practice of medicine, no one who is at all observant of the progress of science can doubt. The great physicians of the future will be great physiologists." (*Preface*, vi.)

In this the author states what is true, but we fear that the happy day when empiricism is to pass from our midst is very far distant.

The novelty of the work before us is based upon its ultraism, treating the science of physiology as a branch of physics—the physics of man—in a more prominent degree than we are accustomed to. The author thus asserts his hopes:—

"For my own part, I have no sympathy with those who say of this or that physiological problem, it is above our reason. My faith in the power of the intellect of man is profound. Far from supposing that there are many things in the structure and functions of the body which we can never comprehend, I believe that there is nothing in it we shall not at last explain. Then, and not till then, will man be a perfect monument of the wisdom and power of his Maker, a created being knowing his own existence, and capable of explaining it. In the application of the exact science of physiology, I look for the rise of that great and noble practice of medicine which in a future age will rival in precision the mechanical engineering of my times." (P. 25.)

There will, no doubt, but very few be found as bold in their hopes as Dr. Draper, but much of this boldness is in part due to the manner in which he often regards the human body.

"A mere machine or engine, which acts in accordance with the principles of mechanical and chemical philosophy, the bones being levers, the bloodvessels hydraulic tubes, the soft parts generally the seats of oxidation. But if we limit our view to such a description, it presents to us man in a most incomplete and an unworthy aspect. There animates this machine a self-conscious and immortal principle—the soul." (P. 24.)

He even looks upon intellectuality as one of the results of the assimilation of food.

"In the organism of plants, the various compounds wanted by plants are fabricated. Animals destroy these compounds, and in so doing maintain a high temperature, irrespective of atmospheric conditions, and give rise to the phenomena of motion and intellectuality." (P. 37.)

In order that the author may not be misunderstood by the language he uses, we would state that in another portion of his work he looks on the *mind* without beginning and without end—the body being the instrument through

which it works, and according to the development or perfection of that instrument so are its phenomena. On this special head more will be said in another part of this review.

With these points prominently before him, the author endeavours to make the various facts of physiology, chemistry, and physics sustain the position, going a step in advance, or a step aside of the most advanced post in physiology; and, however much we may admire the boldness and ingenuity of the arguments, we cannot but see many fallacies, either as entertained by him or by others before him. And still further, we believe that many of those hasty generalizations introduced into modern physiology, from partial or imperfect results of chemistry, retard instead of advance the science, from the fact that an author, having once advanced a theory and become its advocate, is reluctant to abandon it, especially when new discovered facts in subverting his theory furnish none other to replace it.

Who does not remember the tenacity with which our fathers clung to the phlogiston doctrine, and still later to the compound nature of chlorine (oxymuriatic acid), for years after facts were known subversive of these views: the same is true of Lavoisier's theory of respiration, as beautiful as it is erroneous.

We are inclined to believe, with Prof. Lehmann, that enthusiasm in the cause of organic chemistry has degenerated, among many physiologists and physicians, into a fanaticism, which, even in the best cause, tends to invalidate a host of truths in its endeavours to uphold some single fact. In this way its most zealous partisans becoming its worst enemies.

But let us proceed to review certain portions of this work in order, and in many instances it will become necessary to notice views recognized by many of the leading physiologists of the day. In the first chapter on the conditions of life, there are several fundamental points that it would be well to examine into.

"For the maintenance of the life of man, three chemical conditions must be complied with. He must be furnished with air, water, and *combustible matter*." (P. 9.)

"No article is suitable for food except it be of a *combustible nature*." (P. 16.)

"The chief materials which a living being receives from the external world are, therefore, *combustible matter*, water, oxygen gas; and out of the action of these upon one another, all the physical phenomena of its life arise." (P. 16.)

"An animal in this point of view is an oxydizing machine, into the interior of which atmospheric air is constantly introduced. The active constituent, oxygen, satisfies its chemical affinities at the expense of those parts of the system which are wasting away; and, as the act of breathing, that is, the introduction of this gas, takes place day and night, waking and sleeping, so too must the production of burned bodies—a part escaping by the lungs, a part by the skin, a part by the urine. To compensate the loss which ensues, nearly 1,000 pounds of *combustible matter* must be used in the course of a year." (P. 18.)

Without citing any more passages bearing on this point, we would remark that there is no term which appears to us so misused and abused by many physiologists, as that of *combustion*. Now this is a word which has a strict signification, recognized by general use as well as by chemists, and yet physiologists are constantly misapplying it, supposing that they thus establish some important generalization. Physiologists have been forced to see the difference between combustion and the chemical changes in the animal body,

<sup>1</sup> All Italics in this review are our own.

but, reluctant to abandon a theory where they have no other to fall back to, they think to obviate the difficulty by giving a new definition to combustion; and a word that, in common and chemical sense, signified *chemical action resulting in the production of fire (light and heat)*, whether oxygen take a part in the reaction or not, is now so corrupted by physiological use as to embrace all action between oxygen and a combustible body; if this be accepted, the definition of combustion cannot stop here, but must embrace all action between *chlorine, iodine, &c., and combustible bodies*. There is no such violent change occurring in the animal body that can be assimilated to combustion, and the sooner this term is changed to *molecular and chemical action*, the fewer the erroneous theories that will be likely to find their way into physiology. An evil arising from the adoption of this term, and applying it to the chemical changes in the animal body, is that it leads to crude generalizations and utter disregard to the complex nature of these changes. There is no author that has come under our notice who insists more strenuously than Dr. Draper does, in connecting combustion and combustible with the physiological changes in the animal body.

Why announce food as combustible matter? There is no doubt that much of it is so, if dried and brought in contact with oxygen under certain conditions. If, however, we are to understand by the use of the term, that food sustains animal existence by its combustible nature being rendered conspicuous, we take issue with the author, and shall allude to it more fully a little farther on. The statement is an erroneous one, for combustible matter cannot embrace the whole range of animal food any more than non-combustible can that of vegetable; mineral *non-combustible* constituents are as absolutely essential for animal life as albumen, fibrin, or casein, and thus the annunciation is imperfect—something more is necessary to sustain animal life than “air, water, and combustible matter.” It is taking a narrow view of the physical and chemical wants of man to state it thus.

The following, from Carpenter, is a far more correct and rational manner of announcing the three essential material conditions of life: “*Food*, or substances capable of being converted into the solid portions of the organized fabric; *water*, for the maintenance of the due proportion of liquid in its constitution; and *oxygen* for promoting various changes in the assimilated matter, by which it is applied to a greater variety of purposes, and also for uniting with the particles destined for excretion, so that they may pass off in the form in which they can be most readily got rid of.” Food must contain all the elements of the body, however they may be classified with reference to the action of oxygen. This is but a common necessity of plants as well as animals: and although the food of the former is for the most part non-combustible, it would be erroneous to make any such general announcement with reference to plants, for they do consume a combustible (ammonia) that appears essential to its existence and growth.

That no article but a combustible one forms any constituent of food is known by all to be erroneous; 'tis true, the larger part of food consists of carbon and hydrogen in various states of combination, yet it is equally true that many substances enter into the composition of our food belonging to a very different class of bodies. To exemplify this fact, let us take a mixed fluid, regarded as food *par excellence*, namely, milk, which is constituted of casein, fat, sugar, phosphate of lime, chloride of sodium, and other salts in solution and suspension in water; here, the non-combustible phosphates and chlorides are as essential elements of nutrition as the combustible materials casein and fat; for if the phosphates be absent, the infant will be but imperfectly sus-

tained, and death will as inevitably ensue, although not so speedily, yet as directly a consequence, as if the casein or other combustible were absent. To the physiologist, it must appear that the 40 per cent. of phosphate of lime in the bones is as important as the gelatin in the same parts, and that the  $\frac{1}{10}$  per cent. of iron is as important to the blood as the 5 per cent. of albumen. Of the proximate principles of the animal frame, there are one hundred well defined, and of these, twenty-nine are inorganic, and such as would be classed as non-combustible—some forming portions of the tissues, some in the blood, and others in the excretions. Of these, eighteen enter the body from without, ready formed, and are assimilated.

It may be argued that these non-combustible constituents are introduced through the medium of combustible matter; that this is so, arises from the composition of the food, rather than that they must be so introduced. A carnivorous animal takes its requisite amount of chloride of sodium with the flesh that it consumes; an herbivorous animal is not furnished with it through the vegetable food, and it therefore eagerly seeks for the salt in the dirt and soil *unmixed with combustible food*, and assimilates it none the less readily from having so received it. There is nothing illogical in supposing that were milk deprived of its phosphates and chlorides, these salts artificially prepared would restore to it its requisite property.

Therapeutics furnishes many instances of the power of man to assimilate non-combustible materials introduced into the stomach; for instance, take a person suffering from chlorosis with the thin pale blood circulating through the body, introduce the oxide of iron into the stomach, the blood will deepen in colour, and the requisite proportion of iron be restored to the globules of that liquid; in fact, so far as we can judge, this oxide of iron has been assimilated by the animal body as truly as a bit of muscle or bread would be.

It is clearly the desire of the author in the leading chapter of his work to impress the student with the belief that the *fundamental* sources of the operations of the animal body have somewhat the simplicity of machinery, especially such form of machinery as the steam engine, whose source of motion lay in the action of oxygen on combustible matter.

This may appear as an unnecessary criticism of the views of the author—a review of mere words—when the details of nutrition are given more completely in other parts of the work, and where in his subdivision of food into four classes, he puts down the fourth as salts, saying:—

“Any classification of food-articles, which does not contain this group, is imperfect; for salts are not only absolutely essential to organic processes, but also to the construction of many tissues. As an example of the former case, the chloride of sodium may be mentioned, and of the latter the phosphate of lime.” (p. 28.)

It is precisely because his generalization does not agree with the facts, even as he states them, that this point is reviewed so fully. When an author lays down a law or a rule, it is done to facilitate the student in his studies, and enable him even to divine facts without the necessity of acquainting himself with each one in detail. A student will be apt to recollect most easily the generalizations, and if erroneous, he errs accordingly. The sooner that the student is made to look upon man as something more than a mere machine put in motion by combustion, the sooner will he find himself on the path of true physiological knowledge.

In the second chapter, the nature of food is discussed, its sources and classification, and the author adopts to a certain extent the not unfrequent division

of food in two classes, "Histogenetic or tissue-making, and calorific or heat-making," but he very properly remarks—

"It is, however, to be distinctly understood that these divisions are only adopted for the sake of convenience, and that they have no natural foundation. Thus it will be found, when we examine the function which the fats discharge, that though they are non-nitrogenous bodies, and are, therefore, considered as belonging to the class of respiratory food, there is every reason to believe that they are essentially necessary to tissue development, and that the metamorphoses of nitrogenized bodies can only go on in their presence. They are, therefore, as truly essential to nutrition as are the latter substances." (P. 27.)

Classification of food has been a favourite subject of modern physiologists, from the fact that the mind of man aims constantly at generalizations, striving to obtain some simple rule to aid in exploring fields yet unforbidden to the experimenter. When Liebig and Dumas held forth so prominently to physiologists the aid of chemistry, they eagerly seized upon it with the facts and errors, and the attractive but often erroneous theories; and to many of them they still cling, notwithstanding, that more recent experimental researches disprove their possibility; for so averse is man to be without a cause that they will rather believe in a wrong one than to suppose they know none.

It has always appeared to us an assumption unsustained by facts that one class of food more than another is productive of the heat in animals, or that fat and sugar give rise more directly to the absorption of oxygen and formation of carbonic acid. Strange as it may appear, these views have been widely received without being supported in the facts of chemistry; all that the chemist can do in experimental research of this character, is to imitate, as near as possible, the physical and chemical conditions of the animal. Let us then view the matter in this way, and place a bit of muscle with interstitial fat, in contact with air at 100°, and follow the changes hour after hour; softening and decomposition will ensue, and examination will show that the muscular fibre is the portion acted on by the oxygen, giving rise to various allied compounds that are ultimately transformed into carbonic acid and ammonia. What becomes of the fat in the mean time? It resists the action of oxygen, or small portions become converted into butyric, caproic, or other acids, and so remain without undergoing further change; it is a well known fact that in many places of burial, the nitrogenous portions of the body are entirely decomposed under the action of oxygen and moisture, while the fats remain almost unaltered, or their acids have combined with the ammonia of the decomposing tissues to form adipocire, which resists decomposition.

Again, take a portion of milk and place it in contact with air at a temperature of 100°, decomposition soon commences, the sugar is changed (without absorption or loss of oxygen) into lactic acid and resists all further alteration; some little of the acid of the fats become changed into more highly oxidized acids, but the casein passes through a series of decomposition, terminating in carbonic acid and ammonia.

With these facts, the most natural conclusion appears to be, that if any portion of the food rather than another is to be regarded as undergoing in the blood that form of oxygenation giving rise to carbonic acid, it would be the albumen, fibrin, &c., rather than the sugar, fat, &c.; but the truth is, it is vain to attempt to settle the changes which occur in the body by experiments in our laboratories. One great difficulty in imitating these reactions outside of the body, is the complex nature of the animal fluids which must have a marked effect upon the nature of chemical reactions; it is a well known fact, in chemistry, that very slight alteration of the conditions under

which we present substances to each other modify materially their reaction; thus, tartaric acid dissolved in water decomposes the carbonates very readily, but when dissolved in alcohol has no action on them.

The chemist, in none of his operations outside of the animal economy, operates with liquids containing so many principles and so complicated in their nature. The complication of the circumstances with the want of stability of the constituents, renders it impossible for the chemist to foresee results, and he can only grope his way along by absolute experiment. We are not to suppose that the different principles have different chemical affinities in and out of the body, but simply, that the exercise of these affinities is very much modified, and that there is yet but little hope of imitating them artificially. In search of truth, it therefore becomes absolutely necessary to study organic chemical facts apart from those of pure chemistry. There are no experiments illustrating this in a stronger light than those of M. Bernard, with the salts of iron and ferrocyanide of potassium.<sup>1</sup>

Solutions were made of lactate of iron and ferrocyanide of potassium; these, when poured together, produce a Prussian blue; a portion of the iron solution was injected into the jugular vein, and shortly after followed by a portion of the ferrocyanide of potassium, no Prussian blue was formed; and, in killing the animal, a few hours afterward, no blue colour was found in any part of the body, neither in the stomach, lungs, nor urine; yet these two substances existed together in the blood, and their characteristic reaction could be made apparent by adding a strong acid to blood drawn from the body shortly after the injection of the liquids. Other experiments quite as striking, bearing on the same point, were made by this distinguished physiologist. It is well said that when we explain and predict in physiological phenomena unknown results in chemistry and physics, we commence where we ought to end. First of all, experiments should be made on the living animal—from them and them alone, true physiological results and deductions can be obtained; thus, with reference to the changes that sugar undergoes, we know, when introduced into the stomach, it becomes converted into glucose by catalysis, it enters the blood under this form, it is rapidly changed into lactic acid by catalysis of another nature, *and there our experiments cease*; we may suppose that it decomposes the carbonates, and in its turn becomes converted into carbonic acid and other products by absorption of oxygen or by reconstruction of its elements; all these may be possible, they have not been demonstrated, and to construct theories upon them may amuse, but may at the same time mislead.

There is no doubt that physiologists have to modify or abandon entirely their present view about fat as being only respiratory food; Prof. Draper, in alluding to the fat in the blood, admits this.

“The view heretofore taken that this class of substances is not histogenetic, but only respiratory, requires to be modified. There is reason to believe that the blood-cells themselves cannot be formed except in the presence of oil, which is also necessary to enable nitrogenized bodies to assume the ferment action. The nuclei of cells contain fats, as do also embryonic structures generally.” (P. 123.)

“The fats are necessary in the production of fibrin, and for the nuclei of the cells; but, besides these histogenetic relations, they eventually, with the exception of the liver fat, undergo oxydation, and so minister to the support of a high temperature.” (P. 125.)

But we must not be misled by this, from supposing that fibrin and albu

<sup>1</sup> Archiv. Gén. de Méd., vol. xvi. p. 224.

men, or their resultants, when they have fulfilled their histogenetic functions, do not equally undergo oxydation or other chemical decomposition developing heat. It may surprise some, when we assert that for the present we have no experimental authority for stating that this or that class of food serves more especially in giving rise to animal heat; and, notwithstanding that the author under review admits this in some measure, as seen by the last citations, yet, with the idea of combustion ever before him, in another part of his work, he would leave the reader under the impression that the fats are directly subservient to the respiratory organs; for, speaking of the lacteals, he says:—

“Correctly speaking, however, the lacteals are only lymphatics, which are taking up oil presented to them. In view of the use which the oils subserve in the animal economy, the lacteals are in reality an appendix to the respiratory system.” (P. 88.)

“That the lacteals are connected with respiratory digestion, seems to be plainly indicated by the circumstance of their occurrence.” (P. 88.)

Most physiologists, we think, will be reluctant to admit that the lacteals are to be regarded as an appendix to the respiratory system, any more than any other portion of the digestive organs. The food, whether absorbed by the stomach or by the lacteals, has yet to undergo further assimilation in the blood; and, with reference to the chyle, this becomes more evident when we regard the composition of this liquid, and see that out of 100 parts of solid matter contained in it, only 9 are fat, and 70 albuminous substances, arising from the digestion of nitrogenous food. With these facts to rely on, we cannot consent to the announcement that the “lacteals are only lymphatics to take up oil.” It is somewhat surprising that the author should make the statement, when in other portions of his work he so clearly states what the lacteals really do take up; it can only be attributed to his effort to make to appear simple, processes that are in their nature complex.

It is true that the higher we mount in the scale of creation, the greater is the subdivision of organs for special results; thus, among the lowest orders of animals the exterior surface performs all the functions of kidney, skin, and lungs; an internal sac the whole process of digestion; while among the more elevated, many organs supply the place of these two; yet even man is far from having a separate organ for every single end. The salivary glands furnish liquid to enable us to swallow our food; it also imparts certain chemical action to a portion of it—the stomach is both a digestive organ and an absorbing surface, and so the lacteals are not to be set down as expending their entire force, or even the greater portion of it, in the absorption of merely fat, and that all other absorption by them is but complementary.

From this we will pass to the subject of the blood and respiration. There is one matter connected with the composition of the blood that most treatises on physiology misstate, or leave the reader under an erroneous impression, which Dr. Draper has but slightly touched upon: it is in reference to the gaseous constituents of the blood. Ask most students, and I might even add the profession at large, whether it is in venous or arterial blood that the greatest amount of free carbonic acid is to be found? and the answer will be, the venous, of course! and if inquiry be further made as to who is the most reliable authority on this subject, we will be told Magnus. In fact, if we refer to *Müller's Physiology*, p. 345, Lond. ed., 1839, it reads thus: “Both kinds of blood contain carbonic acid gas; venous blood contains most carbonic acid gas—arterial blood most oxygen;” yet he gives Magnus' results; which are

reproduced here from the original memoir,<sup>1</sup> with an additional column, giving the proportion of gas contained in 100 parts of blood. As the experiments were made with varied proportions, it is necessary to have this for a clear view of the subject:—

VENOUS BLOOD.							
	Quantity of blood in centimetres.	Carbonic acid.	Oxygen.	Nitrogen.	REDUCED TO CONTENTS IN 100 PARTS OF BLOOD.		
					Carbonic acid.	Oxygen.	Nitrogen.
Horse . .	125	5.4	1.9	2.5	4.3	1.5	2.0
" . .	205	8.8	2.3	1.1	4.3	1.2	.5
" . .	195	10.0	2.5	1.7	5.1	1.3	.9
" . .	170	12.4	2.5	4.0	7.3	1.4	2.3
Calf . .	153	10.2	1.8	1.3	6.6	1.2	.9
" . .	140	6.1	1.0	0.6	4.3	.7	.4
ARTERIAL BLOOD.							
Horse . .	130	10.7	4.1	1.5	8.2	3.2	1.1
Calf . .	123	9.4	3.5	1.6	7.6	2.8	1.3
" . .	108	7.0	3.0	2.6	6.5	2.8	2.4

From the above, it will be seen that, twenty years ago, Magnus proved by a series of experiments, the most ingeniously devised and skilfully executed of any experiments ever made upon the blood, that arterial blood not only contains more oxygen than the same quantity of venous blood, but also more carbonic acid in solution. We know of but two or three physiologists who have noted these facts aright, and the consideration of them is of the utmost importance in a truthful examination of the phenomena of respiration, in a manner to be mentioned a little further on.

We would not review what Dr. Draper says on the subject of the action of air on the blood, did we not conceive that experimental results are proving that oxygen has a complex action on the blood, one likely to shake our faith in the much admired simple theory. The following is a common view, as stated by the author:—

"The cells, which constitute the other chief portions of the blood, are necessary to the production of a high temperature, by constantly transferring oxygen from the cells of the lungs to every part of the body . . . the plasma serves, therefore, for the general nutrition of the system, and the disks, by transferring oxygen from point to point, discharge that part of their duty which is connected with the production of heat." (P. 126.)

This narrow action of that curious agent, oxygen, will be more and more disproved every day. The blood cells absorb it—of that there can scarcely be a doubt—but are we to suppose that the albuminoid, fatty, and other matter in the plasma of the blood are not altered and assimilated by it, as it is carried by the cells through the mass, giving rise to the many different forms of substances requisite for the muscular, nervous, tendinous and other tissues, for the bile and other secretions, &c.? We are of the opinion that the great and immediate result of oxygen in the blood, is to complete the assimilation and structure of the dissolved food that enters it, and to aid in the necessary alteration of the exhausted tissues that are to be removed from the body. Dr. Draper admits its importance in changing albumen into fibrin. The change of the constantly-forming sugar of the liver into lactic acid is due to the presence of oxygen in the blood, and, no doubt, when experimental results enable us to penetrate further into the mysteries of the action of oxygen, the present

<sup>1</sup> Annales de Chimie et de Phys., 1837, vol. lxxv. p. 185.

prevailing notions will be materially altered. Until then, we must grope along with the feeble light we have, or be misled by the *ignis fatuus* of a plausible theory.

If we are to take the teachings of physiologists of which Prof. Draper is a type, the oxygen must be looked upon as serving almost exclusively for the production of animal heat.

"Reduced to its ultimate conditions, the evolution of animal heat depends on the reaction taking place between the air introduced by respiration and the food, and as either one or other of these is touched, the result may be predicted." (P. 182.)

"In every instance, we assert that the production of animal heat is due to oxidation taking place in the economy, and giving rise to carbonic acid, water, and other collateral products." (P. 182.)

"If there be abstinence from food, since the introduction of air by respiration goes on without abatement, the body itself must undergo oxidation, lose weight, and emaciation occur." (P. 183.)

Although we admit that most, if not all, animal heat is derivable from chemical agency, we cannot admit that the simple statements above convey any adequate idea of the nature of those chemical changes. The author would lead us to suppose that oxygen alone acts in the production of animal heat by a perfect destruction of the substance acted upon, resulting in the formation of carbonic acid and water, and, still further, that this action is between the air and food which enters the blood, and that it is not until the food in the blood is exhausted that the oxygen expends itself upon the tissue of the body.

What are the facts that warrant these conclusions? Oxygen is taken into the circulatory system through the lungs, and carbonic acid and water evolved. Is it not equally true that certain portions of the food and water are taken into the circulation through the coats of the stomach, and from the same surface gastric juice is thrown off? *The lungs, like the stomach, perform a double action, without there being necessarily any immediate connection between those actions.* This much we know, that the changes in the blood and tissues give rise to liquids (embracing solids in solution) and gases. These pass from the blood either as secretions or excretions, and, as the various organs are adapted, so do they operate. The liquids pass through the liver, kidneys, stomach, &c.; the gases through the lungs, skin, and intestines; and, according to the special adaptation of these, so do they predominate in their activity of this function. Carbonic acid gas passes off most readily from the lungs, because the displacement action of the air acts more readily through the delicate membrane of the air-cells than through the thick skin, and as the skin becomes more delicate in animals, so does the amount of carbonic acid discharged in this way increase. Much of the carbonic acid in the blood, doubtless, arises from processes analogous to fermentation; and this conclusion is a rational one, when we consider that the proximate principles of the animal body are usually composed of a large number of atoms of four or five elements, so that small causes may decompose them, and rearrange the multitude of atoms under new forms.

So far as the development of heat is concerned by the agency of oxygen, it matters not whether that element combines with certain substances to form uric acid, urea, creatine, &c., or with fat and sugar to form carbonic acid and water, it is a well established fact that the amount of heat generated by oxidation does not depend on its character, or on the resulting products, but simply on the amount of oxygen that is combined. Physiological experiments are leading us more and more to the conclusion that oxygen has a vast deal to do in the blood, and of more importance than burning up sugar and fat.

We hold no particular theory about the precise manner in which oxygen acts to produce heat, all that we insist on, is not to imagine operations unsustained by facts or analogy.

The following views of Regnault, in regard to the chemical phenomena of the animal body, are certainly correct:—

“The study of chemical reactions in our laboratories, and in vessels which take no part in the phenomena, are very different from the study of those which take place in organized beings; here the chemical reactions take place in vessels the matter of which most commonly participates in the changes, and thus render the phenomena incomparably more complex. . . . It is very probable that animal heat is produced entirely by chemical reactions that take place in the economy, but the phenomena are too complex for us to calculate it from the quantity of oxygen consumed. . . . Besides, in all the transformations and assimilations of substances which take place in the organs, there is disengagement or absorption of heat; but the phenomena are so complex, that there is little probability that we will ever be able to submit them to calculation.”

In treating of the escape of carbonic acid from the lungs, Dr. Draper has overlooked the recent experiments of M. Verdeil which have such a direct bearing on this subject. It is surprising that it should not have been observed sooner that the tissue of the lung was acid. Verdeil obtained a peculiar acid from it, which he called *pneumic acid*. Uric acid has since been found in small quantity.

This acid condition of the lungs must bear directly upon the passage of free carbonic acid into the lungs. The blood enters the lungs alkaline, with bicarbonates and some free carbonic acid, it comes in contact with an acid tissue, and is it not a most natural conclusion that the acid of the lungs should set free some of the carbonic acid in combination with the alkali, and thus put it in a more favourable condition for passing into the air-cells of the lungs? Yet further, this liberation of free carbonic acid is the only way we can explain the larger amount of this gas in the arterial over the venous blood (and that just after the blood had come from the lungs), exhibited by the experiments of Magnus recorded on a previous page. It may be asked, how does this account for it? The venous blood comes from the right heart to the lungs, much of its carbonic acid exists in combination that will not admit of its passing in the air-cells by the mechanical actions which are in play to bring it about, but the acid of the lungs soon obviates this difficulty, by combining with a portion of the alkali, liberating carbonic acid. The blood in the extreme capillaries thus has a large increase of free carbonic acid, a portion of which passes into the cells of the lungs—but yet not all the excess—and the blood finds its way to the left heart, oxygenated by absorption from air, but yet with more *free carbonic acid* than it had when it entered the lungs. The blood is now distributed to the tissue, and this excess of carbonic acid may in part combine with alkalies, &c.

One of the most marked set of experiments ever made, that sustain this view, were made by M. Bernard prior to any discovery concerning the acid of the lungs; and, at the time they were made, the author attributed the results to some catalytic action of the tissue of the lungs; but they are now explained by a very simple and natural chemical decomposition. The experiments are so striking that we will give a statement of them here.<sup>1</sup>

The first experiments were with cyanide of mercury, which, when mixed with gastric juice, underwent decomposition, giving rise to free hydrocyanic

<sup>1</sup> Archives Gén. de Méd., vol. xvi., 1848, p. 219.

acid; if, however, it be mixed with blood, no free hydrocyanic acid is formed. When this salt was introduced into the stomach, poisonous effects of hydrocyanic acid were soon apparent, the animal dying under the well-known effects of this poison. When the same salt was introduced into the blood, the same effects resulted, and the tissues gave out the odor of hydrocyanic acid. The last fact arrested the attention of M. Bernard, and this philosopher and physiologist, "seeing that the blood did not decompose the cyanide of mercury, and knowing that acid disengaged it freely, it was reasonable to suppose that, after it was introduced directly in the circulation by the veins, the cyanide of mercury was afterwards carried into organs where it would encounter acid liquids capable of decomposing it, and giving rise to hydrocyanic acid, which killed the animal; the organs may be the kidneys or stomach. In fact, if we mix cyanide of mercury in the acid urine of a dog, either in the kidneys or in the bladder, decomposition manifests itself in a few moments. The acid coats of the stomach act in the same manner, and I have already proved that substances injected in the blood could pass easily into the gastric secretion." To test whether or not this was so, an experiment was made, in which all the acid secretions were suppressed.

The abdomen of a small sized dog was opened, the stomach, kidneys, and bladder were extirpated, the proper ligatures being applied. Shortly after this operation, cyanide of mercury was injected into the femoral vein, and in half a minute respiration became difficult, the animal soon died in convulsions, exhaling from its throat a strong odor of hydrocyanic acid, and on being dissected, all parts of the animal were impregnated with the same odor, and none of the liquids or the body were found acid. In this experiment the cyanide was decomposed as rapidly as when all the organs were intact.

The source of the decomposition was thus reduced to the tissues; as to the muscular tissue, it was tested by injecting the cyanide into the femoral artery and examining the blood of the femoral vein, which gave no odor of hydrocyanic acid, but contained the cyanide which was immediately decomposed by the addition of a like hydrochloric acid. The result was very different when the cyanide was injected into the femoral vein; in less than a minute the animal died, exhaling from the throat a strong odor of hydrocyanic acid.

It became very evident that the decomposition took place in the lungs and when pieces of muscle, skin, liver, and lung were placed in a solution of cyanide of mercury, the lung alone decomposed it. Bernard, in stating the fact says: "*Thus the cyanides, in passing through the pulmonary tissues, are decomposed as if submitted to the action of an acid.*" This is put in Italics, as it was remarkable that he did not suspect the acid character of the lung, attributing it to a catalytic action; and it was not until three years afterwards that Verdeil discovered the acid of the lung. Bernard, at the time he made the experiments with the cyanides, says, *that certain bicarbonates are also decomposed in the blood at the moment this fluid traverses the lungs.*

"For this purpose all that is necessary is to inject rapidly in the jugular vein a solution of bicarbonate of soda; very soon the animal dies, and on examination the lungs are found to be emphysematous and distended. There exists gas in the largest branches of the pulmonary arteries, and sometimes even in the ventricle of the heart. This gas could only have arisen from the decomposition of the bicarbonate, and the animal dies as when air is introduced into the veins. It is, however, very easy to avoid killing the animal by introducing the solution of bicarbonate very slowly; it thus happens that, in passing little by little into the lungs, it is gradually decomposed, so that the carbonic acid can be dissolved in the blood and not arrest the circulation, as happens when much gas is introduced at once."

In conclusion, the experimenter remarks: "We see that certain substances, as the cyanides and bicarbonate, which usually require the intervention of an acid to decompose them, can nevertheless be decomposed in the alkaline blood. But to effect this decomposition, *the lung is necessary, which appears to be the special locality of that kind of chemical change.*"

When it is remembered that the above experiments were made without reference to any preconceived notion or ultimate theoretical application, they become of great value in our physiological studies. Here we find an author trying to find the source of chemical change which under ordinary circumstances require an acid, he finds himself conducted to an organ which he did not suppose was acid.

These facts of Bernard are made to occupy some space, from the fact that they are not alluded to in the physiology under review, and because physiologists can no longer disregard them, in connection with M. Verdeil's discovery of pneumatic acid, when treating of escape of carbonic acid from the lungs.

Under the subject of secretions, Dr. Draper lays some stress on their pre-existence in the blood, and their passage into the glands by a process of exudation; he does not, however, entirely repudiate the idea that the cells in some of the glands perform a part in the necessary metamorphoses; his views on the subject are embraced in the following paragraph:—

"The cases in which the influence of cells is indisputable, are those which offer to us combinations of progressive metamorphoses. Of these, the most striking instance is the preparation of the spermatic fluid. Perhaps we should not be very far from the truth if we consider all those secretions in which the materials are in a state of retrograde metamorphosis, or in a descending career, as arising by mere filtration, and those which are ascending to a higher grade as due to cell agency; between the two, there being an intermediate class, the phase of which is stationary, and in which cells may or may not be necessarily involved, as for instance, the transmutation of one fat into another, or the preparation of sugar from albuminoid bodies." (P. 192.)

We should say nothing more on this subject did not the author, under the head of special secretions, classify among those formed in the blood, some which we do not think are thus formed; as, for instance, the bile.

"I therefore regard the bile as an excretion of materials which are decomposing and ready to be removed from the system. I incline to the supposition that much of it is derived from the cells of the blood, the life of which is only temporary." (P. 203.)

"In any discussion of the action of the liver, it is thus to be constantly borne in mind that the portal blood consists of two portions, systemic venous blood and matters absorbed from the digestive apparatus. Derived from the first of these portions, we trace the origin of the bile to waste of the tissues, or to the blood-cells on their downward career; and hence we arrive at the important conclusion that every proximate constituent of the bile pre-exists in the systemic venous blood." (P. 203.)

This is contrary to all direct experiments on the subject, as those of Müller and Kune. Arrest the action of the liver in any way whatsoever, and bile does not exhibit itself in the blood; also in certain diseases, as fatty degeneration of the liver, where its cellular structure and functions are profoundly effected, we have no evidence of bile in the blood. Were the bile formed in the blood, the contrary should occur, as in the case of urea, which is proved to pre-exist in the blood. If the kidneys be extirpated or the action be suppressed by fatty degeneration or otherwise, urea increases in quantity in the blood and other parts of the body, as the skin and intestines, that eliminate it to a certain extent.

So far as we are borne out by experimental facts, there is no reason for supposing otherwise than that the cell action of the liver forms bile as well as sugar and fat; it is an organ whose functions are of the utmost interest to the physiologists, who have been amply repaid for their recent experimental investigations of it.

The peculiar properties of endosmose and exosmose are attributed entirely to capillarity, which we know is altogether untenable, and is so considered by the leading authors on this subject; but we cannot stop to review this now, nor the new theory of the circulation of the blood, which was first advanced by Dr. Draper about ten years ago; we examined it with much care then, and have often recurred to it since, but could never be convinced of the truth of it, from it being at fault in its very basis, namely, the capillary attraction in the terminal extremities of the veins and arteries. The fact is, we cannot see how any capillary attraction can occur under the circumstances, but as this involves a more complete review of capillary attraction than this article would warrant, we will have to pass it over, and probably recur to this special question on another occasion.

We would have been pleased to have had more said about the electric currents in the human body as developed by the interesting experiments of Matteucci and Raymond Du Bois.

Prof. Draper, treating physiology as a branch of natural philosophy, divides it into statical and dynamical physiology: "the one including the conditions of equilibrium of an organized form, the other those of its development—development being no more than its motion."

This division is doubtless a very philosophic one, and may lead to useful results, if due precaution be used in not burdening the statical portion with imperfect and ill digested theories, which only serve to heap up confusion and retard the true progress of dynamical physiology, fraught as it is with as much interest and obscurity.

There is much in this part of the work that we should like to review, either from the novelty of its nature or novelty of the manner in which it is advanced. We will, however, remark principally upon the author's views of the agency usually known as vitality or vital agency, and his ideas of progressive development, which are as extravagant as those of Lamarck, or the author of the *Vestiges of Creation*.

He thinks proper to abandon the use of the term vitality, or vital agent, and supplant it by the use of the term "plastic power," or power of arrangement.

"The preceding elementary examination of the circumstances under which plants grow, has led us to the inference that in their germ there resides a plastic power, whose function is to model the organic matter, as it is furnished by the sunlight, into definite shapes or organs." (P. 463.)

"Are plants, in truth then, nothing more than temporary states through which material substance is passing (because of some original physical impression made upon it), and the present operation of external circumstances? Can individuality be applied to them any more than to a flame? Instead of being individuals, are they not rather the transitory results of an operation?" (P. 470.)

"The organic series—an expression which is full of significance and full of truth, for it implies the interconnection of all organic forms—the organic series is not the result of numberless creative blunders, abortive attempts, or freaks of nature. It presents a far nobler aspect. Every member of it, even the humblest plant, is perfect in itself. From a common origin, a simple cell, all have risen; there is no perceptible microscopic difference between the primordial vesicle which is to produce the lowest plant, and that which is to produce

the highest; but the one, under the favouring circumstances to which it has been exposed, has continued on the march of development; the career of the other has been stopped at an earlier point. The organic aspect at last assumed, is the strict representation of the physical agencies which have been at work. Had these for any reason varied, that variation would at once have been expressed in the resulting form, which is, therefore, actually a geometrical embodiment of the antecedent physical conditions. For what reason is an offspring like its parent, except that it has been exposed, during development, to the same conditions as was its parent." (P. 466.)

Nor is this plastic force (as we understand it, the cell-forming force) at all different in the vegetable and animal creation; whatever may be the difference of ultimate form, it is due to external circumstance.

"All animals, no matter what position they occupy in the scale of nature, unquestionably arise in the first instance from a cell, which, possessing the power of giving birth to other cells, a congeries at last arise, the size and form of which is determined wholly by external circumstances. In all cases, the material from which these cells are formed is obtained from without; and, whatever the essential shape of the structure may be, the first cell is in all instances alike. There is no perceptible difference between the primordial cell, which is to produce the lowest plant, and that which is to evolve itself into the most elaborate animal. .... The germ which produces a lichen, obtains from materials around it the substance it wants as best it may; but the germ which is to end in the development of man is brought in succession under the influence of many distinct states." (P. 489.)

All that the author says goes to show that all primordial cells are under the operation of the same plastic force, without any innate capacity of pursuing a fixed course, yet he admits that the cell will develop itself into the likeness of its parent if submitted to the same condition through which its parent passed. We would here stop and ask, how can this be true and all primordial cells be looked upon alike? The very fact, that of the respective cells having a capacity to assume the form of the parent under any circumstances, proves that there is a special directive force in all cells according to their origin.

Adopting the views already mentioned, Prof. Draper has for consistency's sake to adopt the doctrine of progressive development in all its length and breadth.

"Starting from a solitary cell, development takes place, and, according as extraneous forces may be brought into action, variable in their nature, and differing in their intensity, the resulting organism will differ. If such language may be used, the aim of nature is to reach a certain ideal model or archetype. As the passage towards this ideal model is more or less perfectly accomplished, form after form, in varied succession, arises. *The original substratum or material is in every instance alike; for it matters not what may be the class of animals or plants, the primordial germ, as far as investigation has gone, is in every instance the same. The microscope shows no difference, but, on the contrary, demonstrates the identity of the first cell, which, if it passes but a little way on its forward course, ends in presenting the obscure cryptogamic plant, or, if it runs forward toward reaching the archetype, ends in the production of man.*" (P. 506.)

The microscope is expected to unfold the secret mysteries of the germ, and if it shows none between that of a cryptogamic plant and that of man, then the germs are identical; as well might the chemist say there was no difference between a bird and a dog, because chemical analysis showed them to be alike in constitution. The author does admit that there is something in the cell, a condition at least of "plastic force," to which neither chemistry, nor physics, or the microscope could conduct him—how does he arrive at it, then? by its effects only—and in the same way we see more than that in cells—we see

them developed in different directions, even when submitted to the same conditions (a grain of wheat and an apple seed placed side by side in the ground), and therefore conclude that there is a peculiar directive force to each class of primordial cells.

The author's views are not advanced without supposed proofs being adduced to sustain them, and to review them all would be going over the ground that many have done before us, and besides, we would transcend the limit allowed; but one or two of these will be mentioned :—

“Thus man himself, in succession passes through a great variety of forms, from the condition of a simple cell; these forms merging by degrees into one another, the form of a serpent, of the fish, of the bird, and this not only as regards the entire system in the aggregate, but also as regards each one of its constituent mechanisms—the nervous system, the circulatory, the digestive. Now, in the passage onward, these forms are to be regarded, as has been well expressed, each one as the scaffolding by which the next is built; and just as man, in his embryonic transit, presents these successive aspects on the small scale, so does the entire animal series present them in the world on a great scale.” (P. 507.)

“Without going into tedious details, man presents, as regards the most important of his constituent structures, his nervous system, the successive characteristics of an avertebrated animal, a fish, a turtle, a bird, a quadruped, a quadruminous animal before he assumes the special human characteristics. This is his cycle of life.” (P. 513.)

Add to this the example of other animals, as the frog and the moth, which pass through two or three different forms, and we have the character of facts advanced to sustain this strange doctrine.

As regards the changes of a frog or moth from a tadpole or caterpillar, they are but stages in the life of one animal, there is no complete organism until all these changes are accomplished. A tadpole may remain such for a considerable length of time, but never becomes a complete organism; it cannot produce a germ; its utmost capacity is to be changed to a frog and nothing else; the same is true of the caterpillar; in these forms they resemble other animals, to be *like them*, they must go over an impassable gulf—in these we are dealing with embryos, and not animals.

As to man having successive characteristics of the serpent, fish, bird, &c., he never is like either of these animals mentioned, no imaginable arrest of development could make a fish or a serpent of a man, he would be a miserable specimen of either, and never could be classified with any perfect organism. It is clear that whatever similitudes a man has in his embryotic condition, there is but one point that it can stop at—that is man.

But we must leave this part of the subject without our conviction being in the least shaken, that every cell, primordial or otherwise, has its specific endowments.

The boldness of the author does not stop with his views of the gradual development and perfection of the organic kingdom, but he would seek in the nervous structure proof positive of the existence of a soul and of its immortality. The principal of his arguments are based on an inverse reasoning from one set of known facts; thus, giving the nature of light to determine what must be the structure of the organ of vision; or, giving the construction of the eye to determine the nature of light; presuming that this and similar facts can be made out, the author goes on to say :—

“Given, the structure of the cerebrum to determine the nature of the agent that sets it in action. And herein the fact which chiefly guides us in the absolute analogy in construction between the elementary arrangement of the cere-

brum and any other nervous are . . . if the optical apparatus be inert, and without value save under the influence of light—if the auditory apparatus yield no results save under the impression of sound—since there is between these structures and the elementary structure of the cerebrum a perfect analogy, we are entitled to come to the same conclusion in this instance as in those, and, asserting the absolute inertness of the cerebral structure in itself, to impute the phenomena it displays to an agent as perfectly external to the body, and as independent of it as are light and sound, and that agent is the soul." (P. 285.)

"The principle which obscurely animated the germ, is the same which in a higher way animates the embryo, and this again is the same which, in a more exalted condition, animates the infant and the man. The cloudy speck which ushers in the phantasmagoria of life expands as the great Artist directs, until every lineament has become visible."

"That active agent which was first laid in a fold of the germinal membrane was not annihilated when its type of life was changed to placental, and therefore aquatic respiration. It withstood the shock when again, after a due season, it was suddenly made to breathe the air. Arrived at the mature condition, there is not in its companion body a single particle that was present at birth. All has changed. And, what is still more important, not only has there been interstitial removal, but, in succession, the very nature of every one of its organs are changed. It is needless now to repeat how many different systems of nutrition it has depended on—how many sorts of stomachs in succession it has had—how it has breathed by a membrane, by gills, and by lungs—how it has carried on its circulation, without a heart, with a heart of one cavity, and finally with one of four. Through all these losses and changes the immaterial principle has passed unscathed, and even gathering strength. In the broadest manner that a fact can be set forth, we see herein the complete subordination of structure and the enduring character of spirit. Whatever may be the mechanism that is wanted, it is in readiness for its time; and when it has finished its duty, is neglected and disappears. There is, therefore, a sound reason in the conclusion to which mankind, perhaps from a mere instinctive impression, have come, that the soul will exist after death, for, after surviving so many mutations, the removal of so many of what seemed to be its firm and essential supports, we are justified in expecting that it will bear without ruin the entire withdrawal of the whole scaffolding." (P. 549-50.)

We have thus quoted from the author, to give the reader some ideas of his views as regards the existence and immortality of the soul, and we leave it to the reader to reflect how far his arguments may warrant the conclusions.

The chapter on the races of man and his intellectual qualities has many points of interest; he adopts the doctrine of the unity of the races, advancing the usual arguments to sustain its position.

With these views we leave Dr. Draper's work, and feel assured that any one reading it will be much entertained and instructed; although they will find much in it, as set forth by this review, which it will not be safe to adopt—especially his generalizations—which are usually too broad, and much simpler than the complicated facts admit of.

The style in which the work is composed we can speak of in the highest terms, and its typographic execution has seldom been surpassed by that of any medical work issued from the press of this country, and the wood-cuts are unequalled.

J. L. S.

ART. XVII.—*A Treatise on the Practice of Surgery.* By HENRY H. SMITH, M. D., Professor of the Principles and Practice of Surgery in the University of Pennsylvania, etc. etc. *Illustrated by two hundred and seventy-four engravings on wood.* Philadelphia: J. B. Lippincott & Co., 1856. 8vo. pp. 828.

No intelligent member of our profession can view with indifference the appearance in this country of a respectable work upon any branch of the healing art. Notwithstanding the lamentations prevalent of late years, we are inclined to trust in the right feeling and discrimination of the medical readers of our land; being convinced that they will join us gladly in extending a cordial welcome to every home production which may lessen the demand for works of alien birth; at the same time that they will undoubtedly sustain us in preferring the foreign to the native competitor, whenever the latter is inferior to the former. We yield to no one in earnest zeal for the promotion and encouragement of American medical literature, not even to those who have latterly made so much display of patriotic sensibility on the subject;—and we confidently appeal to the pages of this journal, from its commencement, as showing the sincere and hearty reception which has invariably been extended to every native work, of real merit, and the prominent notice always taken of them. We can conceive, however, of but one way of preventing the reprobated reprints—the obvious but difficult one of superior effort on the part of American writers.

The monopoly of excellence in such pursuits needs no artificial fostering; and, in our opinion, can only be impeded by the retrograde machinery of prohibitory laws and impositions. These are the expedients of a feebleness and immaturity which we would fain hope is no longer the condition of American authorship. They are not justified by any limited demand for meritorious works, and would be too apt to prolong the very state of literary languishment complained of, by encouraging the mushroom development of crudities which, under present self-regulating influences, could never venture into light. We look confidently to those who hold the watch-posts of our calling—the hospital surgeons and professors, and to the able and accomplished in our private ranks, to remove the stigma cast upon us. If really competent and earnest in their endeavours to supply what is needed to secure our independence, they must eventually succeed in effecting the great end desired, while they will, as hitherto, gather in their own ample harvest of reward.

Under these impressions, we must regard with peculiar interest any new work by a Professor of Surgery in the University of Pennsylvania. We cannot forget that the time-honoured seat he occupies was once the fountain-head of surgical wisdom and experience in America. Whatever comes to us, even now, with the seal of its authority, must be tried by the high standard which it was the first to raise and long rigidly enforced. We need not dwell upon the responsibility thus involved in the publication of another University Class-book on Surgery, or on the elevated character unavoidably expected in a production armed with the prestige of a source around which cluster some of the highest associations in American surgical annals. The well-known text-books of his predecessors, and the more formidable, because contemporary, rivals from the British schools, forcibly remind us that in the new enterprise there is not only an old reputation to sustain, but a new one to establish. The competition with the past and present thus necessarily encountered by the

new candidate for the post of surgical preceptor, renders it necessary for us not only to inquire into the merits of the volume as the surgical statute book of the future pupils of the University, but at the same time to sift its qualifications as the substitute for similar and well established works of transatlantic origin—in short, to subject it to the tests which must, whatever be our action, determine its position as an acquisition or a burden to our didactic literature.

The difficulty of our task is in some measure increased by the ambitious title adopted by the author. The comparison of his one volume "Treatise," as already intimated, is inevitable with the two volume "Epitome" of Dorsey and the two volume "Outlines" of Gibson; to say nothing of the "First Lines" of S. Cooper, the "Vade Mecum" of Druitt, the "Manual" of Fergusson, and the later essays of Miller, Pirrie, and Erichsen. These are all *verba magistri*; but, with the exception, perhaps, of Erichsen's, not one of them claims to be a treatise, while there is no one which is not, or was not in its day, at least, as much entitled to the claim as the one before us.

Dr. Smith proposes his "Treatise" as a "Text-book" to be used as an "adjutant to his lectures." He says also that he "has endeavoured so to arrange it that whilst it will recall many of the opinions taught in his course, it will also facilitate the progress of the young surgeon, and prove useful to him as a work of reference in the responsibilities of early professional life."

The preface further informs us that—

"Although the title of Practice of Surgery has been taken, the work will be found to contain as full an exposition of the principles of the science as was consistent with its character as a text-book."

Further we learn, with considerable surprise, that—

"As operative surgery requires for its performance a constant reference to the details of regional anatomy, it has been made the subject of a previous treatise, the second edition of which, in two volumes, has now been some time before the profession. To these volumes frequent references are made in the following pages, the two works being intended to form one series on the science and art of surgery."

The necessity for anatomical accompaniments may have been a good reason for making operative surgery the "subject of a previous treatise," but we cannot imagine how such necessity, whether real or not, is to justify the exclusion of operative surgery from either a "text-book" or a "treatise" on the "practice of surgery."

The practical result of this unusual omission can be neither pleasant nor profitable to the students who are obliged to take the "text-book," whether or not their time and means admit of a resort to the bulky and expensive "previous treatise." The *ex post facto* appendix thus provided for, is not, from the nature of the circumstances, available to many under-graduates; so that the arrangement of one book at the expense of the other, may become in a great degree a sacrifice of both.

One more extract from the preface may be offered in behalf of certain of the short-comings which we have to notice.

"In the composition of the present treatise, it has been the author's wish to present each subject as fully as was essential to its comprehension by the youngest of his pupils without entering into such details of the history, pathology, &c., of each as properly belong to monographs. Such an extended treatise on each of the various affections that are daily presented to the attention of the surgeon, would have enlarged this work beyond reasonable limits

and destroyed the object of its formation. Such reading should also be made to occupy the years which ensue upon graduation, and is amply provided for in the works of those who have devoted themselves to special subjects, as in the Treatises on Fractures, Luxations, Diseases of the Breast, Testicle, Hernia, &c., by Sir Astley Cooper; the Affections of the Bones, by Stanley; of the Eye, by Lawrence; of the Ear, by Wilde, &c. But, to all these subjects, sufficient insight is now offered to tempt the student to further investigations when he has mastered the elements of his profession, if the love of knowledge in him, as in others, grows with its cultivation."

The author arranges his material in eighteen separate parts, each of which is divided and subdivided into chapters and sections. Part I. is headed "Surgical Pathology and Therapeutics." It begins with a short "Introduction," which, in order that it may speak for itself, we are tempted to extract entire.

"Surgery (*χειρ*, the hand, and *εργον*, work; Chirurgia, Latin—Chirurgie, French) may be defined as that part of the 'healing art' which relates to the characters and treatment of such disorders as are tangible, whether arising from impaired vital action or excited by external causes.

"In explanation of the extended meaning of this term, Mr. Lawrence includes under it: '1. Injuries of all kinds. 2. The greater part of external and local complaints. 3. Such internal affections as produce changes recognizable externally. 4. All disorders requiring external topical treatment, operation, or manual proceedings of any kind.'"

"In order to promote the more thorough examination of this wide field, surgical writers have subdivided it into two grand portions; one being known under the general head of 'External or Surgical Pathology,' the other under that of 'Surgical Therapeutics.' Such a methodical division, though highly conducive to study, must not be regarded as being based on any natural arrangement of the disorders to be investigated, few external affections existing independently of the sympathetic action of the internal organs.

"Under the head of External or Surgical Pathology, are usually placed all those laws which are generally recognized as the Principles of Surgery or its Science; whilst the term External, Surgical, or Mechanical Therapeutics, properly expresses the whole Art or Practice of Surgery.

"Surgical therapeutics, as well as surgical pathology, includes, however, many principles which are common to the practice of medicine as well as to that of surgery, whilst the former (surgical therapeutics) embraces not only the internal means of treatment, but also, under a special head (Operative Surgery), such remedial measures as are carried into effect by means of cutting instruments.

"In the arrangement of a work which is intended to be adapted to the wants of the youngest, as well as to those of the more advanced student, I shall, in view of the definition just given, confine myself to such portions of the Science and Art of Surgery as are not included under the last head (Operative Surgery), this having been the special subject of a previous treatise."

"In the methodical division of the present treatise, I will consider, 1st, such portions of surgical pathology and therapeutics as are more or less applicable to surgical disorders in all parts of the body (Parts I., II., III.), then treat of those which affect the different tissues (Parts IV., V.), and subsequently take up the consideration of such as are specially related to certain regions of the body (Parts VI. to XVIII.)." (Pp. 17, 18.)

Little need be said of this first part, except that, notwithstanding its title, it contains no "Therapeutics," being devoted exclusively to "Surgical Seme-

<sup>1</sup> Cooper's Surg. Dict.

<sup>2</sup> A System of Operative Surgery, based upon the practice of surgeons in the United States, with a Bibliographical Index and Historical Record of many of their operations, during a period of 234 years. Second edition, by the Author. Philadelphia, 1855.

iology, or that portion of pathology which teaches the signs or symptoms of surgical disorders." Under this general term it glances at surgical diagnosis, 1st, by means of "signs furnished by the exterior of the body;" 2d, "from an examination of the internal organs;" and ends in the third place with a chapter "Of the Use of the Senses in forming a Diagnosis." Objective and subjective symptoms are strangely mingled together in the first two chapters. The third chapter is sufficiently full, if not disproportionately so, in comparison with the first and second. The fourth section of this chapter, "on the sense of taste" as a means of diagnosis, is evidently an amplification of a shorter paragraph from the great work of Vidal de Cassis, and strikes us as inappropriate in a volume from which so much matter of practical utility appears to have been crowded out.

"Surgical Pathology of the Soft Tissues," is the caption of Part II. It exhibits, in one hundred and eighty pages, a summary view of the "General Characters," "Etiology and Treatment," and "Effects or Products" of inflammation. Of this we may say that, though it is marked by a few obsolete modes of description and notions of histology and morbid processes, the author manages to present a pretty clear and fair idea of the philosophy of the subject as explained by Paget, Bennett, Wharton Jones, and other late authorities. The remainder of this part is occupied, in some seventy-nine pages, with Abscesses (acute and cold); Hectic Fever and Pyemia; Ulceration and Ulcers (including sections on the different kinds of ulcer, on bandaging, on the sequelæ of ulcers, and on skin diseases as connected with ulcers); Mortification in its different forms; Specific Forms of Inflammation (furuncle and carbuncle); Burns; Effects of Cold, and lastly Erysipelas.

Under the general head of "Pathology of Abnormal Growths in the Soft Tissues," Part III. is divided into two chapters, the first of which treats, in about forty-one pages, of "Malignant Deposits or Growths," and the second, in twelve pages, of "Benignant Tumours." Each of these interesting topics receives a comparatively full share of attention. They are well illustrated, and appear to approach tolerably near to the present state of progress in these questions. We should have been glad, however, to find a clearer and more connected account of both the course and the diagnosis of carcinomatous disease. A more precise description of the physical characters of cancer recognizable as far as may be without the microscope, and at least a summary appreciation of the local and constitutional signs, by which the student might be enabled to estimate the respective values of these signs together and apart, would have much increased the practical efficiency of the chapter on malignant growths. Mere drawings and descriptions of microscopical appearances are of little use to the unpractised observer; nor are these microscopical appearances now admitted to be data sufficient of themselves to justify a diagnosis. One of the most invariable and striking characteristics of cancer, the cancer-fluid or "juice," is altogether overlooked by Doctor Smith. We observe also that he makes no distinction between epithelial cancer or epithelioma and carcinoma proper. He describes cancer of the skin as a "true scirrhus," although he afterwards incidentally calls it epithelial cancer.

In connection with the treatment of "cancer of the skin," or rather immediately after the section on this form of the disease, he gives a separate section on the "Treatment of Cancer by Caustics." Some of the formulæ recommended are antiquated and unscientific, while others are hardly deserving of the space they occupy, even as matters of curiosity. We allude to them, however, only to enter a protest against his idea as to the harmless nature of the arsenical nostrums generally employed. He tells us (p. 187) that—

"In the formulæ for these caustics it will be seen that the chief ingredient in nearly all of them is arsenious acid, and at first sight it might be feared that the constitutional effects of arsenic would be induced by such an application. But the general rule that in order to favour the absorption of any substance it must be applied in such a manner as not to create irritation holds good also here, the irritation being so great in the application of these caustics that effusion occurs, not absorption, hence there is no risk of mischief from the poisonous effects of arsenic."

We do not hesitate to say that this is a most dangerous error, and an extraordinary assertion to be made by a professor of surgery. So many undoubted cases of death from the external use of arsenical caustics in cancer are on record that both the "general rule" and its corollary so carelessly announced are altogether untenable and inexcusable. We do not pretend that the "risk of mischief" is great in all cases, but where there is an appreciable surface on which the arsenic is to be applied, the danger is always so imminent that no teacher ought to affirm that the risk does not exist.

Part IV. is devoted to "Injuries of the Soft Tissues." After a few words on the "Process of Repair in the Soft Tissues," he takes up in successive chapters the "general character of wounds," "special wounds," "gunshot wounds," "tetanus," "wounds of the regions of the body." In the first of these chapters we find three sections, which treat respectively of the "healing of wounds," "hemorrhage," and "union of wounds." The chapter on special wounds is made to comprehend, along with the usual array of incised, lacerated, contused and punctured wounds, an account of poisoned wounds, which monopolizes more than twice as much space as that afforded to the every-day accidents and obviously important subjects of the earlier section of the same chapter. Nor can we discover in this section any new views or information to warrant so tedious an episode at the expense of much practical matter which is absent from this portion of the work. The chapter next in order, that on gunshot wounds, occupies ten pages, or one-third fewer than are appropriated to poisoned wounds. It is perhaps sufficiently full, although it bears no impress of any gleaning from the rich experience of the last ten years. In this chapter we meet for the first and only time with any definite allusion to the well-known state of collapse from injury which is generally called the "shock." He dwells upon this as something peculiarly remarkable and worthy of attention in gunshot wounds, although we suspect it is neither more frequent nor more serious than in many other kinds of injury, and certainly not more entitled to attention than it is in compound fractures, injuries of the head, severe contusions, lacerations or burns, in abdominal or thoracic wounds, and in railroad injuries of all kinds.

In the case of gunshot wounds he tells us it "may generally be relieved by very simple measures and more may be done by 'acting on the morale than upon the physique;' the patient should be encouraged as much as possible, and every means employed calculated to raise the spirits. A moderate amount of diffusible stimuli should also be administered, and for this, whiskey and water will answer very well; the symptoms of shock thus being speedily relieved in the majority of cases." (P. 188.)

Passing over tetanus we come to "Wounds of the Regions of the Body," in chapter fifth. This occupies, along with numerous illustrations, some twenty-two pages in seven short sections. For a text-book, especially a treatise, on the practice of surgery, we must say that this whole chapter, although not exceeded in importance of its topics by any in the book, is yet one of the most barren and unsatisfactory. The reader will be continually surprised

and annoyed in it with one defect which is characteristic of the whole book—the unequal amount of space and attention bestowed upon different subjects. Wounds of the scalp, for instance, are not too fully treated of, and yet they are spread over almost as many pages as are allowed to injuries of the brain. Wounds of the face, also, occupy over two pages, while wounds of the chest take up no more, and those of “the neck” not as much, a considerable share of the space in each of these two sections being absorbed by wood-cut engravings of certain handkerchief dressings! We have little time to dwell upon the special deficiencies in the different sections. These are sufficiently glaring to attract the notice of intelligent students, and must inevitably disappoint the inexperienced surgeon who may happen to rely upon the book containing them, “as a work of reference, in the responsibilities of early professional life.”

We are told that in cases of suicide, the wound of the throat “is generally made between the os hyoides and the top of the larynx, producing little danger to life,” and that such a wound “should be closed by sutures, yet closed so as to leave a free exit for the pus, lest it burrow under the superficial fascia of the neck. If the individual is maniacal, and attempts to tear out the stitches after the wound is dressed, as is not unfrequently the case, he must be controlled by means of a strait-jacket, or by stout assistants.” He then alludes to the leather stock, “recommended in these cases with a view of preventing the overlapping of the edges of the wound,” but objects to it as not sufficiently controlling the motions of the head, and prefers for this purpose the handkerchief bandage of Mayor, which is figured in full on the next page. “Sometimes,” he continues, “wounds are made upon the side of the neck, so as to involve the external or internal jugular vein or the caroid artery, and thus cause serious and fatal hemorrhage. Or the *laryngeal* or other vessels may bleed from being partially divided, until the patient faints, and then the bleeding be arrested.” He remembers “tying up *several branches of the laryngeal* in a case of this sort,” in which, very much to his surprise, the patient finally recovered. He then reminds us that “in suicidal attempts patients will sometimes commit very trifling injuries upon the neck, which yet will be followed by serious consequences.” The occasional effect of wounds and blows upon the back of the head and neck, is next mentioned as producing “sometimes a remarkable train of symptoms, as when the cerebellum is involved, the patient will frequently lose entirely his virile power.” We have thus given in the foregoing brief quotations, the sum and substance of the article on injuries of the neck.

That on wounds of the chest is still more meagre and imperfect. We note only the two concluding paragraphs; they are short enough to be quoted at full length. “As a general rule in all wounds of the chest, involving the thoracic viscera, the wound should be *closed* as speedily as possible, and a tight bandage applied so as to compel the patient to breathe by his diaphragm, and thus prevent all motion of the ribs. A wound of the *axilla* or shoulder should have its dressings retained to the part by a handkerchief folded as a cravat, and applied as in Fig. 93.” We cannot stop to discuss the propriety of closing thoracic wounds in some cases, and of its bad policy in many others, but we may venture to say that we had hoped in these days of more enlightened practice, that the suffocating system, with the bandage here directed, had been laid aside entirely. The second paragraph embraces all that is said about a most troublesome and dangerous class of injuries.

The remaining three sections, on wounds of the abdomen, intestines, and genito-urinary organs, respectively, are even more remarkable specimens of

professorial teaching. It is not easy to do justice to their peculiarities, except by quoting them in full. We can adopt no fairer mode of dealing with that on "Wounds of the Abdomen," than to present it as it stands, and without comments.

"The danger in *wounds of the abdomen* arises chiefly from their liability to produce peritonitis; and the prognosis, therefore, is always serious. The treatment will be modified by the character and contents of the viscera involved.

"Thus, wounds of the *liver* give rise to very troublesome hemorrhage; but a formidable danger is that resulting from the hepatitis which may be set up. It should be treated upon the same principles as hepatitis uncomplicated by wounds. Should abscesses form, they should be evacuated; but, before this is done, adhesion should be brought about between the peritoneum covering the liver and that lining the abdominal walls, by proper means, such as by cutting down nearly to the peritoneum, and applying nitrate of silver and caustic potash.<sup>1</sup> When the surgeon is sure that adhesion has taken place, the pus may be evacuated without danger of its escaping into the peritoneal sac.

"In wounds of the *stomach*, there will be hemorrhage, depending for its violence upon the position of the wound. Thus, wounds of the greater and lesser curvatures of the stomach will be likely to produce greater hemorrhage than wounds in other parts of its parietes. Wounds of the stomach, when it is full—as after eating—will also be likely to result in the escape of its contents into the cavity of the abdomen.

"In view of these dangers, it might be supposed that these wounds would be necessarily fatal; but, on the contrary, patients very often recover from them; and there is a well-known case on record, in which a man, having had such a wound inflicted upon him, a cobbler, who was in the neighbourhood, went to work with his awl and waxed ends, and deliberately sewed the whole wound together, making the viscus fast to the abdominal walls, and yet the patient recovered. And this course is far from being irrational treatment, as stitching the wounded stomach to the abdominal parietes will diminish the dangers of the escape of gastric juice or other matters into the peritoneal sac. Of course, the patient should be kept upon the lowest possible diet, and be informed of the risks of his wound."<sup>2</sup> (Pp. 308, 309.)

The spirit of the cobbler signalized in the foregoing extract seems to have had some influence on the matter of the succeeding section on "Wounds of the Intestines," for, after the incidental statement that such wounds "may also give rise to trouble by allowing their contents to escape into the peritoneal cavity," the single page which is given to the subject of intestinal injuries is occupied solely with various sutures, "the details of which belong to operative surgery, and are given with plates in the work alluded to"—i. e. the author's previous treatise. The descriptions of these sutures are either too inaccurate or too incomplete to be of any use to learners; nor is anything said of their special applications, except that Lembert's "will be found desirable in transverse wounds," and that Ledran's "is particularly applicable to longitudinal wounds of some extent." The puzzled reader is apprised, in conclusion, that, "of course, the selection of any one of these sutures will depend upon the nature of the wound, and the accompanying circumstances. Thus, sometimes we have wounds of the intestines which will be best treated by simply surrounding the whole wound with a single ligature—such, for example, as wounds accidentally made in operations for hernia, or such as result from a mortified spot in an intestine that has been strangulated." The student is then left to work out the problem of intestinal sutures by himself; while, instead of explanations and specifications, however brief, that might have helped to clear

<sup>1</sup> See Op. Surg., vol. ii. p. 78, 2d edit., for other cases.

<sup>2</sup> See Operative Surgery, vol. ii. p. 65.

away the fog, he is presented with a formidable minor surgery picture (Fig. 95), which is much more suggestive of stricture of the urethra than of wounds of the intestines.

The mere explanation of this illustration, as annexed underneath the engraving (see p. 310), requires a greater amount of space than the author has thought it necessary to give to wounds of the kidney and wounds of the bladder, both together. The two sentences in which these serious injuries are dispatched can only be appreciated through a *verbatim* view. They are literally in the following words:—

“In *wounds of the kidney*, inflammatory action is the principal danger to be feared; this, of course, should be combated by appropriate means; but such wounds are generally fatal.”

“In *wounds of the bladder*, a catheter should be introduced and retained in position, as shown in Fig. 95, *till* the urine passes readily by the natural channel.”

The concluding section rivals its companions in its mode of discussing wounds of the genito-urinary organs.

“Wounds of the generative apparatus vary considerably,” we are informed; “sometimes the *penis* has been cut off by the patient himself, or by others.” \* \* \* “Sometimes individuals have cut off their *testicles* while labouring under maniacal excitement; and I have known cases where persons confined in prisons, and others, have attempted this with the edge of a broken bottle, &c.” \* \* \* “Wounds of the *female* generative apparatus may occur; very extensive laceration of these parts having been produced by falling astride of the stopper of a bath-tub, &c. In such cases, usually, the chief danger is from the inflammation which will ensue; and this should be combated upon general principles. Wounds of the *buttock* and *perineum* are also sometimes created by falls, or, as once occurred, by the breaking of a chamber-pot under the weight of a heavy man. Under these circumstances, the wound should be freed from all particles of foreign matter, and the parts covered by a poultice, &c., as directed in lacerated wounds. The best means of retaining a dressing to this part of the body is by means of the handkerchief bandage of Mayor. One handkerchief, in the form of a cravat, being tied around the pelvis, and the other, in the shape of a triangle, being applied by its base around the thigh, whilst its summit is pinned to the cravat, as shown in Fig. 96.”

With the exception of a few words, of little moment, in regard to hemorrhage in amputated penis and in self-castration, we have thus quoted all that is said in relation to injuries of organs and a region which are notoriously liable to accidents, such as ruptures and lacerations of the bladder or urethra, contusions or lacerations of the perineum, and other lesions of the gravest character, ignorance of which, on the part of the surgeon, might involve his patient and himself in the very worst consequences.

Injuries and diseases of the bones and joints come next in order. They appear, naturally enough, to have received a much larger share of attention than have the affections of the soft parts. The first chapter of this part furnishes, in addition to the other usual generalities, some detailed information in regard to the handling of the patient, and the preparation of fracture-beds, which is useful and interesting, notwithstanding its apparent triviality. We have no serious objection, in a text-book, to really practical instruction of this kind—even to the extent of many pages. It will doubtless prove more acceptable, as well as more immediately available, than much of text and illustration that now occupy no less valuable space. Our only regret is, in reference to this and other similar portions of the volume, that many higher and more important precepts, both of the science and the art, have not been elaborated in an equally familiar manner. Two or three pages upon the duties which concern rather

the nurse than surgeon although too often devolving on the latter, may hence be neither inappropriate nor detrimental to the proper objects of the work; but they do not in any degree compensate for such condensations as that, for instance, of the diagnosis, prognosis and treatment of fractures of the cranium within little over a single page! No one, we suspect, could learn, from the extremely slight sketch of the latter vitally important questions submitted by our author, how to recognize a fracture of the cranium in its true nature and extent, or what to do for it when recognized.

We have neither time nor inclination to follow Dr. Smith in many of his propositions in the introductory and other portions of this part on fractures and luxations, although, as he evidently feels at home, the *individualities* are correspondingly numerous and striking. We cannot, however, leave his chapter on "Fractures in General" without adverting, for a moment, to the admonition volunteered to Mr. Paget, as the apostle of the established school of surgical pathology, in respect to "provisional" or "ensheathing" callus. The latter designation is graciously approved as preferable to the former, but the venerable doctrine of our author's student days is not to be lightly laid aside, and he insists upon the two forms of definitive and provisional bony union, of Dupuytren, as "yet recognized to a considerable extent" by surgeons, the researches and the testimony of the best surgical minds of the age to the contrary notwithstanding! The manner in which, at the present stage of the investigation, he hazards the unsustained assertion that "personal observation induces me to think that Mr. Paget's first opinion on this point will not be maintained by him on further and more extended observation" is not likely to advance his own reputation for scientific accuracy or judgment.

In regard to fractures of the ribs, nothing is said of the frequent intolerance of the bandage around the chest, which every surgeon who applies it must, from time to time, encounter and submit to in the course of practice; nor is any mention made of the efficient and comfortable dressing of adhesive strips applied only upon the affected side, which has, in many hands, of late years nearly superseded the old fashioned circular constriction.

The prognosis of fracture of the clavicle, he tells us, "is generally favourable, if proper means are employed to keep the fragments in position, and perfect cures, without deformity of the level of the shoulders, can generally be obtained by proper attention. Such results have been so frequently noticed as to leave no doubt on this point in the minds of many, though sometimes such good cures have not been made." (P. 357.) This is too vague a proposition to be worthy of note in a scientific treatise; but as it is an expression of opinion addressed especially to students and inexperienced practitioners, we must suppose that he means his pupils to understand that they are to promise and to expect, by obeying his directions, to obtain, under ordinary circumstances, what he subsequently describes as "not only perfect union of the fragments, but union without angularity or any deformity." In this assertion he is in direct contradiction with many surgeons of great experience and high authority. Among these no one commands the confidence of the profession more decidedly and deservedly than Professor Frank H. Hamilton, of Buffalo, New York, whose valuable report "On Deformities after Fractures," published in Vol. VIII. of the *Transactions* of the American Medical Association, contains the fullest and most incontrovertible array of tabulated and specified cases hitherto recorded in relation to this question. Yet Dr. Smith makes not the slightest allusion, except by implication, to this standard document, and ignores alike the laborious researches and the positive results of its able and indefatigable author, as well as the repeatedly ex-

pressed experience of some of the most enlightened and skilful surgeons of the world! We doubt not that, under our author's skilful management, and that of the hospital surgeons of Philadelphia, as fair an average of cures has been attained as need be hoped for; still we have reason to suspect that here, as elsewhere, the exceptions have been quite numerous enough to afford a positive refutation to the merely negative dictum so confidently reannounced. Speaking of the treatment of fractures of the patella, he eulogizes the splint employed by Dorsey, and expresses his belief that "there is perhaps only one mode by which the fracture can be kept more thoroughly in position, and that is the plan of Malgaigne." This latter surgeon is described as hooking "two little iron clamps into the fragments," which are then approximated by means of a screw, and in this way succeed generally in effecting osseous union. Dr. Smith naturally enough objects to this apparatus as probably painful and irritating. We allude to it only for the purpose of remarking that Malgaigne's practice is to introduce the points of his instrument into the tendon above and below the respective fragments, and that in his hands there cannot be any penetration of the bone or wounding of the joint.

Our author further informs his readers that "very good cures have also been accomplished in these cases by the use of strips of sticking plaster, a dressing which was many years since considered applicable to compound fractures, or to fractures combined with wounds in the region of the knee, as it at the same time served as a dressing to the fracture and as a means of closing the wound." He then describes the application of a succession of long strips embracing the joint obliquely in two sets, so as to draw upwards and downwards on the respective fragments, and overlapping each other so as to envelop the entire joint. This dressing is combined with the ordinary spiral bandage of the whole limb, and a posterior splint or the single inclined plane. It is an injuriously constricting, and, on many accounts, objectionable application of the plaster—especially in case of wounds or compound fractures—and altogether unlike the efficient and simple arrangement recommended by Dr. Neill. Our author evidently does not understand the latter, for he concludes a tedious series of directions for the complicated wrapping of adhesive strips, above briefly described, by erroneously stating, that "in the Pennsylvania Hospital of Philadelphia, it has been frequently applied to simple fracture with satisfactory results—attention having been called to it by Dr. John Neill." (P. 425.)

Many other questionable passages in the part on fractures, before as well as after the above, occur to us as equally open to exception; but we gladly pass them over, and stop for a moment at the final section only: that on "pseudarthrosis or ununited fracture."

At the close of an incomplete and very brief enumeration of the modes of local treatment practised for the removal of different forms of this infirmity—constitutional adjuvants and some of the best local measures being wholly unnoticed—he mentions the expedient of Dieffenbach, "who drilled holes in the extremity of the bones, and, inserting little pegs of ivory, kept them there until such an amount of inflammation was produced as resulted in union." He then informs us that "Dr. Brainard, of Chicago, has also proposed to drill a number of holes in the end of the bone with an awl, with the same view." Next we are told, by way of a practical estimate, that "in order to make use of any of these modes of treatment, it becomes necessary that the patient should, for a long time, retain the recumbent position; whilst he is exposed to the risks of the creation of a compound fracture, in which suppuration may take place," and more words to the same effect. We need not take the

time to show how little these objections can apply to some of the best established preliminary methods, which he has obscurely represented and jumbled up with vastly more difficult and dangerous procedures. This cavalier mode of slurring over the ingenious and comparatively simple subcutaneous operation of his countryman, Dr. Brainard, is especially unfortunate in a text-book addressed to American students. It is hard to conceive how any teacher of surgery in this country could mistake a tested improvement, which was the subject of a prize essay in so recent a volume as the seventh of the *Transactions* of the American Medical Association, for a mere proposition in imitation of the more serious and very different, although admirable, operation of the Prussian master. The most hasty examination of that prize essay and of its excellent illustrations would have convinced him, not only of the dissimilarity of the two operations, but of the success which had attended the performance of the Dr. Brainard's method in at least seven cases.

This number of cases happens to be just the same as Dr. Smith himself brings forward in favour of a plan and a contrivance which he seems to cherish as the creature of his own invention, and for the sake of which he is inclined to sweep away all other kinds of treatment.

"With a view of avoiding these dangers," he remarks in reference to the objections already cited, "I some time since called the attention of the profession (*Am. Journ. Med. Sci.*, vol. xxiv., N. S., p. 102, Jan., 1855) to an apparatus consisting of an artificial limb (Figs. 169, 170), which formed a complete casing for the affected member, and by means of which union was hastened, and a tolerable amount of usefulness at once obtained in any limb affected with false-joint." The paper here alluded to was extracted from the *American Journal*, and extensively circulated as "A New Plan for treating Ununited Fractures," and is so announced in the report on medical literature in the *American Transactions* for 1856.

We suspect that few surgeons of any standing in the last half century have not been more or less familiar with this *new* plan, in all its essential features, as one of the most obvious and the earliest of the preludes to more decided remedies. We shall not dwell upon the particular stage and form of lesion, including constitutional defects, which alone have been regarded as amenable to the combination of pressure with due retention of the fragments and regulated exercise descanted on by Dr. Smith. We must, however, be allowed to say that *Cooper's Surgical Dictionary* or *Velpeau's Operative Medicine*, without reference to more original authorities, might have satisfied him that the principles and practice of his favourite treatment date back almost, if not quite, a hundred years; and that, ever since the time of White, in 1760, they have been applied and recommended in various ways, but ever with discriminating adaptation to the nature of the case, by the most eminent surgeons of the day.

We are pleased to find that he does due honor to the *flexion method* of reducing certain dislocations of the femur, introduced by Dr. Reid; and that in drawing a very favourable contrast between it and the ordinary process, he does not forget to award the merit of at least restoring and systematizing the invention, to its American author. Some notice of the observations of Dr. Markoe, of the New York Hospital, as to the danger in certain cases of producing fracture and other mischief in the manœuvres practised with Reid's operation, and the precautions consequently enjoined, would have been an important addition to the lesson on this interesting subject.

The concluding chapter of Part Sixth treats, in four sections, of diseases of the joints, and includes under this head "sprains," "arthritis or white

swelling," "ankylosis" and "morbus coxarius." Of these topics, sprains and morbus coxarius enjoy the lion's share of space. We regret to see that the section on the latter, which is otherwise a useful summary, is burdened with an unnecessary attack upon the views of Dr. March, of Albany, "advanced" in the American *Transactions* (Vol. VI.), as to the rarity of "spontaneous dislocation of the hip as purely the result of morbid action unaided by superadded violence." Although he tells us that "this distinguished surgeon" arrived at his conclusion "after taking considerable trouble in investigating the subject, and even visiting Europe," he nevertheless imagines that the "correctness" of the conclusion of Dr. March, thus laboriously sought and reached, "can be best disproved by an examination of the specimens, from some of which the accompanying cuts are taken (Figs. 208, 209, 210, and 211)." (P. 554.) "Various preparations," he subsequently says, "exhibiting the frequency of this luxation of the femur as a result of hip disease, are in my cabinet, as well as elsewhere, and show that there are many facts to militate against Dr. March's opinion." It is not our purpose to take either side in this debate, but we must wait for stronger evidence than the dictum just announced, even though accompanied with its vouchers in the shape of the four diminutive and not very graphic wood-cuts of cleaned and dried cabinet specimens, before we yield our confidence in the more definite experience of the Albany professor.

"Affections of the Eyeball and its Appendages," "Diseases of the Ear," "Affections of the Nose and its Cavities," "Affections of the Throat and Neck," come next in order, and are rapidly disposed of in four parts and some seventy-seven pages. These are followed by Part XII., on "Hernia," in fifteen pages; Part XIII., on "Diseases of the Genital Organs" (in a strangely confused and unequal series of sections on venereal diseases and their sequelæ, together with a whole chapter on Spermatorrhœa); Part XIV., on "Stone and Gravel," in eleven pages and a half; Part XV., on "Affections of the Testicle and Cord" (hydrocele, hæmatocele, varicocele, and spermatocele, in nearly eight pages, and tubercles of the testis in over ten pages, most of these latter being a mere reprint from an article published sixteen years ago); Part XVI., on "Affections of the Anus and Rectum," in nineteen pages; Part XVII., on "Aneurism," in twenty pages (of which about ten lines are devoted to aneurismal varix, about seven lines, with an illustration, to varicose aneurism, and twelve lines to aneurism by anastomosis); and Part XVIII., on "Affections of the Extremities," including paronychia, enlarged bursæ, varicose veins, and club-foot.

We confine ourselves to the above hurried outline of the contents of the last eight parts, not that they are less interesting in their topics, or that there is not something to commend and much to criticize; but because the reader, whose patience and perseverance have carried him thus far in following our review, must be as weary of his labour as we are of ours, and deserves a release from further durance with the least possible delay.

The task of the critic was never more irksome and unpalatable to us than on the present occasion; while, for obvious reasons, it could rarely be more imperative. In scrutinizing the claims of the work of Dr. Smith upon the confidence of preceptors, pupils, and practitioners as a systematic guide book, we have felt bound rather to dwell upon its bad points than its good ones; since the latter, by the mischief they may do or the good they leave undone, can neither be counterbalanced nor counteracted by any healing virtue in the former. Whether a work emanating from the oldest medical seminary in the country—with one exception still the largest in the numbers of its classes—

is to be indorsed and recommended as a comprehensive and reliable instructor, while tainted with the frivolities and disabilities—not to say heresies—which have here been briefly pointed out, our readers may determine for themselves. We have endeavoured to discharge a most unpleasant duty towards the scientific bearing of his work, and, were it proper, should willingly leave our author without comment on its literary aspect.

Much less, perhaps, may be expected of this kind of merit in a practical or scientific treatise addressed to experts; but in a text-book prepared especially for learners, accuracy, perspicuity, and a certain amount of elegance and force of style, are indispensable requisites. Unfortunately, the lack of each of these qualities is sufficiently apparent in the extracts already submitted to our readers. Confusion of language as well as of ideas, awkward phraseology and general absence of precision in descriptions and directions, are more or less prominent characteristics of every chapter in the book. Another serious blemish which is particularly reprehensible in a class-book, is an unusually careless habit of misspelling and misquoting familiar proper names. Thus Heister and Miller are both quoted as “of England;” and Hennen, Hind, Macartney, and Desault are invariably written Henen, Hines, McCartney, and Dessault! The stereotyped excuse of press of other occupation, offered in the preface, affords no adequate apology for errors of this kind. Want of time and opportunity to make a better one may readily account for the defects of any ill-digested specimen of authorship; it is one of the worst of reasons for imposing such abortion on the public—above all for purposes of teaching, and with the indorsement of a professor.

The duty of the publishers has been, as usual, well performed. The book is printed on good paper; and the illustrations, although often inappropriately and inconveniently large, are generally sufficiently well engraved.

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ART. XVIII.—*An Exposition of the Signs and Symptoms of Pregnancy, with some other papers on subjects connected with Midwifery.* By W. F. MONTGOMERY, A. M., M. D., &c. &c. Second edition. London, 1856.

THE present edition of Dr. Montgomery's classical monograph is somewhat enlarged, and has undergone, as the author informs us, so thorough a revision that it may almost be regarded as a new work. A sufficient quantity of material has certainly accumulated since 1837, the date of the previous edition, to supply many additional facts of importance to a work intended to represent the actual state of our knowledge on the subject of which it treats. The portions of the work which have been more particularly enlarged are the preliminary chapter on the state of the female system during pregnancy, that devoted to obstetric auscultation, to the diagnosis of spurious or simulated pregnancy, the normal duration of human gestation, the examination of the body after death for the purpose of detecting pregnancy, and the essay on the spontaneous amputation of the foetal limbs in utero.

The first chapter, devoted to “General Observations on the State of the Female System during Pregnancy,” is introduced for the purpose of enabling the reader to appreciate more fully the description of the individual signs of pregnancy subsequently given. It is in this chapter that Dr. Montgomery

touches upon the very interesting question how far mental and moral impressions made upon the mother during pregnancy can induce injuries or deformities of the fœtus. The popular notion that the influence upon the child of such mental and moral impressions is very great, though altogether disregarded by some physicians as unfounded, is, we think, admitted by the best authorities at the present day as having a great deal of evidence in its support. The facts upon which it is based, though often exaggerated and distorted by the popular love of the marvellous, and though sometimes apparently quite inexplicable on ordinary physiological principles, do nevertheless certainly exist. Dr. Montgomery quotes several instances of this sort from other authorities, and gives the details of two which came under his own observation. In one of them the lady, while pregnant, objected to walking out for exercise as she was advised, for fear of meeting a cripple with deformed feet whose appearance was exceedingly repulsive to her, and who haunted that portion of the town through which she was most likely to walk; and when she was delivered, her child, which was premature, was found to have a precisely similar malformation. In the other instance, a corresponding deformity of the hand was predicted by the mother, and attributed to her having seen the same thing accidentally in another infant when she had been but a short time pregnant.

It seems probable, in fact, that in every case where the organization of the child is seriously affected through the sensibilities of the mother, the impression must be made during the early periods of pregnancy. At that time, while the organs are in process of formation, while even the spinal column and the limbs are still imperfect, there is no difficulty in understanding how a severe shock to the nervous system of the mother should disturb or altogether arrest the development of any part of the fœtus. If trifling mental and moral qualities, belonging to the mother, may be transmitted, as we know they are, to the infant, only to reappear, perhaps, after many years of growth and development, we certainly cannot deny the possibility of powerful nervous shocks exerting a direct influence on the fœtus through its bodily organization. Even at a comparatively late period of pregnancy certain deformities, such as spina bifida, hare-lip, club-foot, &c., which are purely owing to a retarded or arrested development, may, without doubt, be produced in a similar way. The extravagances of the popular notion in this respect consist principally in fancied resemblances between the object which excited the alarm or disgust of the mother, and the mark which is afterwards found on the body of the child. A case once occurred under our own observation in which the child was born with a deficiency of the cranial cavity and bones, and in which the brain protruded as a soft, rounded, reddish mass on the top of the head (exancephale). The deformity was attributed, by the woman's friends, to her having been struck by a ball thrown by a boy in play some time during her pregnancy; and the protruding brain of the deformed fœtus was averred to be "the very ball" by which the mother had been injured. To the same category we must refer stories of children being born with the snout of a pig, or masses discharged from the uterus resembling a tortoise or other reptile, on account of the mother having been previously frightened or shocked by the sight of these animals; and though such resemblances are usually altogether fanciful, there can yet be no doubt that the shock produced by a disagreeable sight in a sensitive female may affect so profoundly the uterus and its contents as to produce serious deformity in the embryo.

There is no necessity for supposing any mysterious or very unusual mode of action in either the nervous or vascular systems in order to account for such

an effect. We know very well how nervous impressions will disturb the circulation in the brain, the face, the lungs, &c. ; and the uterine circulation is quite as easily influenced by similar causes, as we see every day in cases of amenorrhœa, dysmenorrhœa, &c. If a nervous shock may excite premature contraction in the muscular fibres of the pregnant uterus and produce abortion, it is certainly capable of disturbing the course of the circulation through the bloodvessels of the organ. But the foetal circulation is dependent, to a great degree, on the maternal. Since the two sets of vessels are so closely entwined in the placenta, and since the foetal blood has here much the same relation to the maternal that the blood in the pulmonary capillaries has to the air in the air-vesicles, it will be liable to derangement from similar causes. If the circulation of air through the pulmonary tubes and vesicles is suspended, that of the blood through the capillaries comes to an end also. In the same way, whatever disturbs or arrests the circulation through the vessels of the mother must necessarily be liable to interfere with that in the foetal capillaries forming part of the placenta. And lastly, as the nutrition of the foetus is provided for wholly by the placenta, it will, of course, suffer immediately from any such disturbance of the placental circulation. The effect of this may be manifested in the general atrophy and death of the foetus ; or, if the disturbing cause be slight, in the atrophy, or imperfect development of particular parts ; just as, in the adult, a morbid cause operating through the entire system, may be first or even exclusively manifested in some particular organ which is more sensitive to its influence than the others. It is easy to see, therefore, that there is nothing inexplicable in the general fact that moral impressions acting on the mother may produce alterations, either local or general, in the foetus ; though there may be a difficulty of explaining the exact mode of operation in particular cases.

Another, and much more singular fact, is discussed in the same chapter with the above, viz : that the foetus may exert a reciprocal influence upon the mother, so that some of the peculiarities of organization belonging to the male parent may be communicated, not only to the foetus, but through the foetus to the mother, by means of the placental circulation ; and again by the mother transmitted to subsequent offspring by another male. He cites as examples the well-known instances of the Earl of Morton's Arabian mare, which was covered by the quagga, when not only did "the mule so begotten partake of the characters of the sire, but when the mare was subsequently submitted to an Arabian stallion, by whom she had three foals at different times, the first two continued to exhibit some of the distinctive peculiarities of the quagga, conjoined with the characters of the Arabian breed ;" and, as another example, the "litter of pigs" mentioned by Mr. Mayo, which "resembled in colour a former litter by a wild boar."

It is undoubtedly in this way, if at all, that constitutional syphilis is communicated by the male to the female. The taint is communicated, of course, to the ovum ; and when the foetus, in the process of development, becomes connected with the uterine walls by a placenta, it may transmit to the blood of the mother the constitutional taint which it derived from the father. It is for this reason, apparently, that secondary syphilis cannot be communicated to the female by simple coition, but yet may be so communicated, provided coition is followed by conception. Whatever the true explanation may be, however, the author vouches for the frequent occurrence of the fact.

In the second chapter there is given a very useful classification of the several sources from which the signs and symptoms of pregnancy are to be drawn,

and the various considerations by which we are to be guided in their application. These different sources of diagnosis are—

*First.* "Certain affections of the constitution, induced by pregnancy;" such as suppression of the menses, nervous irritability, capriciousness of temper, erratic pains, dropsical effusions, &c.

*Second.* Sympathies excited in other organs "in consequence of the irritation induced in the uterus;" such as the changes taking place in the mammary gland, the areola, vomiting, salivation, &c.

*Third.* "The altered condition of the uterus itself," including its enlargement and rise into the abdomen, with the effacement and protrusion of the umbilicus, the alterations of the cervix uteri, the purple colour of the vagina, &c.

*Fourth.* "The contents of the uterus so enlarged," and the signs derived directly therefrom; as the movements of the fœtus, its repercussion or *ballotement*, the sounds of the fœtal heart, and the placental souffle.

*Fifth.* "Certain organized substances" which may be discharged from the uterus and subjected afterward to examination, such as moles, hydatids, membranes, &c., which may settle the question of pregnancy by being recognized as the products of conception—and,

*Sixth.* A *post-mortem* examination of the uterus and its appendages, which may be undertaken with a view to decide the question of pregnancy, either before or at various intervals after delivery has taken place.

"Now, it is quite obvious," says Dr. Montgomery, "that of the signs thus enumerated, some are of a kind much more decisive than others, and in this respect, I think we may very conveniently divide them into three classes; considering the first and second groups as *Presumptive*, the third as *Probable*, and the fourth, fifth, and sixth as *Unequivocal*. Many of the sympathies included in the first class are not necessarily the result of pregnancy only, as their specific cause, but may arise equally from the uterine irritation, which is common to that and other conditions of the female system, and hence one great source of deception and error; while, on the other hand, conception is, occasionally, productive of so little disturbance or alteration in the exercise of the several functions usually affected, that one of our principal guides in forming an opinion is unavailable. And again, conception sometimes occurs when the system has been already in a state of disease, which, by the derangement previously produced, will prevent the possibility of judging from the absence or presence of those indications to which we refer in ordinary cases, as happened in the instance of E. G., to be related hereafter, who was labouring under disease of the heart, and had the catamenia suppressed two whole years, when she conceived."

The value of the above signs, moreover, is to be estimated according to certain considerations which are essential to a correct diagnosis. These considerations are as follows:—

"1st. The interval at which they have appeared, after the supposed time of conception.

2d. The order, or succession, in which they have presented themselves.

3d. Their value, as certain and unequivocal, or as uncertain and equivocal.

4th. Their correspondence with each other.

5th. The length of time they may have been in existence."

It is evident that the interval which elapses after the supposed time of conception, as well as the order in which the symptoms appear, may make a vast difference in their value and signification; as, for example, where the enlargement of the abdomen is perceptible in less than a month, or, on the other hand, does not show itself till seven or eight months have elapsed. In

each instance the symptom loses its significance, so far as pregnancy is concerned, in consequence of appearing either too early or too late. And again—suppressed menstruation, morning sickness, mammary development, and enlargement of the abdomen, occurring successively, point very strongly to pregnancy; but if their order be reversed, the enlargement of the abdomen appearing first, and the suppression of the menses last, they are in all probability dependent on some other cause.

The diagnosis of pregnancy is nearly always to be made up, especially during the first half of the period, by the collation of many separate signs, any one of which may be equivocal if taken by itself; but all of which, when simultaneously present and corresponding with each other, may amount to almost positive certainty.

There are, as the author remarks, only three phenomena that can be called, by themselves, certain or unequivocal symptoms of pregnancy. These are—

*First.* Active movements of the child, unequivocally felt by another;

*Second.* Its presence in utero, ascertained by ballottement; and

*Third.* The pulsations of the foetal heart.

“If any one of these be ascertained,” he says, “beyond doubt, it settles the question; but then, we must remember, that they are decisive only on the positive, or affirmative side; if certainly recognized, pregnancy is indisputably proved, but their absence, or rather our not being able to discover them, would be no proof that pregnancy did not exist.”

In speaking of suppression of the menses as an element in our diagnosis, the author mentions various instances to show that it is not, by any means, a positive sign of pregnancy. For not only may suppression be owing to other causes than pregnancy; but even an habitual amenorrhœa does not necessarily prevent conception taking place, provided the woman be otherwise healthy. In one instance which fell under the author's own observation, the lady was pregnant for the fourth time, and yet had never menstruated since her first confinement, five years previously. In another case, the patient had had six children in nine years, and yet had never once menstruated during the whole of that period. Such cases as these, many of which have been noticed by other observers, show that a periodical discharge of blood is certainly not necessary to fecundity. For, properly speaking, this discharge does not constitute the essential part of the menstrual process, but is rather an external symptom of the more important changes taking place in the ovary. And if the ovum come to maturity and be discharged from the ovary, it may, of course, be fecundated and developed, though its usual accompaniment of an external flow may be wanting.

The opposite condition, in which the menses continue during the early part of pregnancy, is probably somewhat more rare. The author speaks of several instances within his knowledge in which menstruation recurred once after conception, and quotes other authorities to show that it may show itself more than once, and has even been known to return, at its ordinary intervals, during the entire period of gestation. It appears from these instances that menstrual suppression, though the first symptom of pregnancy, is, taken by itself, one of the least positive, and may mislead us in either direction, if we rely upon it exclusively. Nausea and vomiting, salivation, the enlargement and increased sensibility of the mammæ, are also shown to be valuable as signs of pregnancy only when taken in connection with other symptoms, and in the absence of any other obvious exciting cause.

The condition of the *mammary areola* in pregnancy is a sign which has

been so thoroughly studied and described by Dr. Montgomery, that it may almost be regarded as a discovery of his. The elegant series of coloured engravings which accompany the present work, showing the progressive development of the areola in the third, fifth, seventh, and ninth months, were taken from the second pregnancy of the same patient that furnished a similar series for the first edition; and beside them the author has given a drawing of the areola of an albino in the seventh month of her first pregnancy, in which all the usual characters of the areola are present, except that its colour is of a clear pink instead of the brown tinge which is seen in females of the ordinary complexion. The colour alone is not in any case, according to Dr. M., to be regarded as decisively characteristic; the more peculiar and reliable changes being the tumefaction and unusual moisture of the skin, the development of the mucous follicles about the nipple, and more particularly a peculiar *mottled* or *spotted* appearance, which seems to be regarded by the author as the most decisive of all. His description of these signs is so graphic and lucid, that we cannot do better than to transcribe a part of it.

"In the centre of the coloured circle," he says, "the nipple is observed, partaking of the altered colour of the part, and appearing turgid and prominent, its apex being, more or less, covered with little branny scales, produced by the drying of a sero-lactescent fluid which oozes from the part, and a drop or two of which may, in general, be pressed out by the fingers; while the surface of the areola, especially that part of it which lies more immediately around the base of the nipple, is studded over and rendered unequal by the prominence of the glandular follicles, which, varying in number from twelve to twenty, project, from the sixteenth to the eighth of an inch; and, lastly, the integument covering the part appears a little raised, turgescient, softer, and more moist than that which surrounds it, while on both, there are to be observed at this period, especially in women of dark hair and eyes. numerous round spots, or small mottled patches of a whitish colour, scattered over the outer part of the areola, and for about an inch or more all round, presenting an appearance, as if the colour had been discharged by a shower of drops falling on the part. Dubois, referring to this appearance, as described by me, and often noticed by himself, applies to it the designation of secondary areola. I have not seen this appearance earlier than the fifth month; but, towards the end of pregnancy, it is very remarkable, and constitutes a strikingly distinctive character, *exclusively resulting from pregnancy*: the breasts themselves are, at the same time, generally full and firm, at least more so than was natural to the person previously, though to this I shall have occasion to notice exceptions; and venous trunks of considerable size are perceived ramifying over their surface, and sending branches towards the disk of the areola, which several of them traverse: along with these vessels, the breasts not unfrequently exhibit, about the fifth or sixth month, and afterwards, a number of shining, whitish, almost silvery lines, like cracks; these are most perceptible in women who, having had before conception very little mammary development, have the breasts much and quickly enlarged after becoming pregnant."

Like many other signs of pregnancy, however, the areola, though very distinctive when it exists, is not equally valuable as a negative sign; since, owing to imperfect development or a want of sensibility in the mammae, it may be slightly marked, or altogether absent, though conception have taken place and pregnancy be even considerably advanced. Another important circumstance, too, is to be considered in examining the breasts for this purpose; viz., that the deepened colour of the areola, as well as the "whitish, silvery lines," already spoken of, may remain more or less distinctly marked after delivery, and may even become permanent; so that they may be really the signs, not of a present, but of a previous pregnancy. These peculiarities, however, should not be regarded as diminishing the value of the symptom,

but only as requiring that judgment in their observation and application which is so necessary to the medical man in every species of diagnosis.

The *dusky hue of the vagina*, first proposed as a test of pregnancy by Professor Kluge of Berlin, and by M. Jacquemin, of Paris, is spoken of at some length. In the previous edition of Dr. M.'s book he did not express any decided opinion as to the value of this sign, owing to the rare opportunities presented in English practice for making an ocular vaginal examination, unless in cases where some morbid condition of the parts is known or suspected to exist. Since then, however, he has had, as he says, very ample means of observation on this point; and the results of his more extended experience lead him to regard the vaginal discoloration as a very valuable diagnostic mark. He states, indeed, that "in every instance, without a single exception, in which he found this appearance distinctly marked, pregnancy coexisted." One remarkable instance, illustrative of its value, is mentioned at page 245, in which the colour was "unusually well marked at the fourth month, but at six months had entirely disappeared; the ovum having been in the mean time blighted."

Among the accidental conditions accompanying pregnancy, and more or less characteristic of it, are mentioned alterations in the temper, imagination, or even in the judgment; an unnatural, excessive, or depraved appetite, and those singular caprices sometimes observed, which are termed by the common people "longings." The vulgar notion with regard to these longings is that they must be gratified; and that if they are not, some harm will be likely to follow either to the mother or child, or both. Dr. M., however, regards them as more liable to do injury when freely indulged, than when restrained within moderate limits. It seems, indeed, no more than reasonable to believe, that such unnatural practices as eating freely of chalk, cloves, cinders, bogwood, &c., should have an injurious tendency during gestation, as they certainly would in the unimpregnated condition. Still, it appears to us as straining probabilities too much to regard the injury to the child, in every instance, as directly dependent on the capricious habits of the mother; as, for instance, where a fungus hæmatodes in the infant (page 281) is attributed, by implication, to the mother having been in the habit of eating brown paper. The capricious appetite is more probably only one symptom of that morbid internal condition of the female system, of which the disease of the fœtus is also a consequence.

With regard to that peculiar ingredient of the urine termed *kyestein*, of which so much was said at one time, Dr. Montgomery adds his testimony to that of most others who have examined the matter with care, and comes to the conclusion that its presence or absence is quite unreliable as a test of pregnancy.

"In some of the specimens of urine," he says (page 305), "from cases of undoubted pregnancy, the peculiar changes did not manifest themselves: in other cases, where pregnancy did not exist, appearances were observed so like those supposed to indicate that state, that I confess I could not discriminate between them."

The pellicle which forms, in some instances, on the urine of pregnant women, and which was supposed to be characteristic of their condition, does not, indeed, contain any peculiar animal substances beyond those produced by the decomposition of the mucous ingredients, which are always present in larger or smaller quantity. It consists, as is now very generally acknowledged, only of abundant crystals of the triple phosphate, entangled in a mass of coniferoid growths and vibriones. The phosphatic crystals owe their formation

to the rapid alkaline fermentation of the urine; and the confervæ and vibriones find a ready growth in the decomposing animal substances of the secretion. Any urine, therefore, which easily undergoes the alkaline fermentation, and which contains, at the same time, rather more mucous or other albuminoid ingredients than usual, may present the kystein-pellicle, and evolve beside, as we have also had occasion to observe, a more or less distinctly marked cheesy odour. This appearance must, therefore, we think, be abandoned as an indication of pregnancy.

In the thirteenth chapter, the characters of the *corpus luteum*, as a mark of pregnancy, are described at greater length than in the former edition. The author recognizes fully the existence of two kinds of corpora lutea; those, viz., which are the effect of ordinary menstruation, and those which result from the establishment of pregnancy. The difference between them, now we believe universally acknowledged, is given in a series of statements, one of which indeed comprises, in a condensed form, but in general terms, the entire distinction between the two kinds of bodies.

"The corpus luteum of menstruation," he says (page 487), "within one or two months passes rapidly into a state of atrophy and decay; whereas that of pregnancy continues to be developed, and to acquire greater firmness and more perfect organization, during more than the first half of the period of gestation."

The author regards, therefore, the corpus luteum which results from pregnancy as having entirely peculiar and distinctive characters; and as furnishing, by its presence or absence, a positive means of diagnosis. We presume that this fact is now so generally acknowledged as hardly to be disputed by any one; though at the period of the first edition of the *Signs and Symptoms of Pregnancy*, authorities were very nearly equally divided on that point. There are one or two minor particulars, however, in which Dr. Montgomery is at variance, we should judge, with the majority of observers at the present time. The greater number of physiologists and obstetricians, on the Continent, at least, regard the rupture of a Graafian vesicle, with the discharge of an ovum and the subsequent formation of a corpus luteum, as so many constant, regular, and integral parts of the process of menstruation; so that there are to be found, except in cases of disease, only two different kinds of yellow bodies in the ovary, viz: those of menstruation and those of pregnancy; the differences between them being wholly owing to the difference in the rapidity of their development and subsequent atrophy. Dr. Montgomery, however, does not allow this to its full extent. Like some other English writers, he thinks the Graafian vesicle becomes regularly tumefied at each menstrual period, and in many instances is ruptured and discharges the egg; but that the process is not constant, and is "by no means always" followed by the formation of a corpus luteum.

"If corpora lutea were formed," he says (page 479), "at every menstrual period, we could not open the ovary of any healthy young woman in the habit of menstruating regularly without discovering more than one, perhaps several, of these structures, a thing which everybody knows does not happen. That such changes in the ovary do, almost constantly, accompany the periods of heat, or œstruation in the lower animals, giving rise to the formation of corpora lutea of considerable size and perfection of structure, is proved by numerous observations, of the accuracy of which we cannot doubt; but with regard to women, it is otherwise, and any such assertion can only be made of them with far greater limitations; for in them, owing probably to the less intense excitement of the generative apparatus, the ovum is oftentimes not extruded at the menstrual period, and the corpus luteum may not be produced at all; or if

formed, is less substantial; and here I would deprecate a course too often pursued in matters such as we are now considering, namely, that of applying unreservedly to the human female, analogies drawn from facts ascertained in the lower animals."

We cannot but think, notwithstanding the doubts expressed by the author, that the evidence of the constant formation of corpora lutea at the menstrual epoch is now quite satisfactory. It cannot be denied, as Dr. Montgomery himself says, that it takes place always in the lower animals; and though, as he very justly remarks, it is quite improper to apply physiological analogies drawn from the lower animals to the human species in an unreserved manner, still, there are instances in which the resemblance may be so close in all essential points as to establish at least *probabilities* of the strongest kind. That seems to us to be the case here. At every return of the period of heat or œstruation in the lower animals, together with the congestion, swelling, increased secretion, and more or less abundant hemorrhage which takes place in the uterus and adjacent parts, we know that a Graafian vesicle ruptures and a corpus luteum forms in the ovary. In the human female, the menstrual period is the period of œstruation; and, as the rupture of the vesicle is the essential part of this process in the lower animals, to which the uterine congestion, hypersecretion, and hemorrhage are only accessories, we certainly have, so far, *prima facie* evidence that it takes place also in the human female at menstruation. There is plenty of direct evidence, moreover, to show that it very frequently does so; and the only difficulty that Dr. Montgomery finds is in acknowledging that it does so *always*. If that were the case, he remarks, we should discover several corpora lutea whenever we opened the bodies of healthy young women in the habit of menstruating regularly; "a thing," he says, "which, as everybody knows, does not happen."

The assertion contained in the last sentence we should be very much inclined to dispute. The menstrual function is well known to be an exceedingly sensitive one, and liable to be materially disturbed by even a few days' illness; so that we cannot expect to find the normal ovarian changes present in most cases in which we are called upon to open the body. The opportunities of examining the ovaries of young women dead by accident or violence, while menstruation was recurring with regularity, are quite rare; but in those which have occurred we have abundant testimony that not only one, but many corpora lutea are present, in different stages of development and retrogression. The rapidity with which they become atrophied, however, provided pregnancy do not intervene, causes most of those which occur simultaneously in the ovaries to be so small and imperfect that they may be readily overlooked without a careful search. Still, we cannot doubt that they are there in all cases in which the menstrual process has been undisturbed, and may be discovered, if sought for.

Dr. Montgomery also retains the opinion, expressed in his first edition, in opposition to that of De Baer and others, that the yellow matter of the corpus luteum is deposited *between the two coats* of the Graafian vesicle. Dissections of the corpus luteum in the cow and sheep, and also in the human female within the first three weeks of its formation, must, we think, convince any one that there is no second membrane lining the interior of the corpus luteum, but that its yellow wall is in immediate contact with the bloody or fibrinous coagulum which occupies the cavity of the ruptured vesicle. A mistake, in this respect, is only liable to occur during the middle or latter period of pregnancy, when the coagulum has grown colourless and dense by long-continued absorption. Dr. Montgomery refers, in this connection, to a drawing (Plate 2, Fig. 2) in the essay on the "Corpus Luteum of Menstruation and Pregnancy" published

in the *Transactions of the American Medical Association* for 1851, in which, as he says, the corpus luteum is represented (p. 435) "with a central cavity, exhibiting a distinct white membrane, by which it is completely lined." But this white membrane, as stated at the same time by the author of the essay referred to, was simply a "fibrinous mass;" while the relations of the central coagulum and the yellow wall were "the same as in all the corpora lutea previously observed," *i. e.* in immediate contact with each other, without any trace of an intervening membrane. The appearance alluded to was consequently nothing more than the remains of the hardened and bleached coagulum; and we feel confident that this will be found to be the real character of all such lining membranes found on the internal surface of the corpus luteum.

On another point we think Dr. Montgomery in error, viz: in regarding the yellow matter of the corpus luteum as taking part in the nutrition or development of the ovum, and as beginning to be formed before the rupture of the Graafian vesicle. If this yellow matter were really a source of nutrition for the ovarian ovum, or, as Négrier expresses it, a "kind of placenta for the germ," it would be difficult to understand why its complete development should be delayed till long after the expulsion of the egg from the ovary; for no one pretends that its formation has proceeded further than its "commencement" at the time the egg leaves the Graafian vesicle. But we are confident that its production has not even commenced at this time, and that it does not begin until the vesicle is already ruptured and the egg discharged. We have had so many opportunities of observing the Graafian vesicle, both in the cow and sheep and in the human subject, not only prominent and ready to burst, but actually ruptured and collapsed, without any yellow deposit having yet been formed, that we can no longer entertain any doubt on this point. The oily deposit in the substance of the corpus luteum, to which that body owes its yellow colour, so far from being intended as a source of nutritive supply, seems rather to be regarded as a simple process of fatty degeneration, which precedes the atrophy and disappearance of the corpus luteum, and which is altogether analogous to the fatty degeneration of the uterus after parturition.

This fatty degeneration and reconstruction, or "involution" of the uterus, as it is called, has been fully described by Dr. R. Heschl, formerly first assistant to Prof. Rokitansky at Vienna, now Professor of Pathological Anatomy at the University at Cracow. His account is adopted by Dr. Montgomery, and furnishes a very valuable means of diagnosis in cases where the body is examined after death in order to determine the question of a recent parturition. According to Prof. Heschl, the fatty degeneration in normal cases commences about the end of the first week, and soon becomes general. After the old muscular fibres have become thoroughly fatty, they disappear by absorption; and about the fourth week new fibres begin to be formed, which take their places. The entire renovation or reconstruction of the uterus is usually complete by the end of the second month.

One of the most valuable and interesting chapters in Dr. Montgomery's book (and they are all eminently so) is that in which he treats of the "Spontaneous Amputation of the Foetal Limbs in Utero." This chapter has also been much enlarged since the first edition. It is illustrated with several finely executed wood-cuts, and gives an exceedingly complete and satisfactory account of those singular accidents to the foetus which have so often puzzled the pathologist and obstetrician. A portion of the chapter is devoted to a class of malformations which present, we believe, quite a new question in medical jurisprudence—those, namely, which resemble so closely, in their appearance, recent wounds or lacerations, as to be liable to excite suspicions of intentional muti-

lation. The peculiar character of these malformations is pointed out by Dr. Montgomery, and ample directions given to prevent a mistake in diagnosis. The chapter forms a very appropriate termination to a book unusually rich in practical suggestions. J. C. D.

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ART. XIX.—*Traité Expérimental et Clinique d'Auscultation appliquée à l'étude des Maladies du Poumon et du Cœur.* Par le Docteur J. H. S. BEAU, Médecin de l'Hôpital Cochin, Agrégé Libre de la Faculté de Médecine de Paris, etc. etc. A Paris: Chez Baillière, 1856. 8vo. pp. 628.  
*Treatise, Experimental and Clinical, on Auscultation, as applied to the study of Diseases of the Lungs and Heart.* By J. H. S. BEAU, etc.

THE author of this work is not a new candidate for distinction in the annals of medicine. Any one tolerably conversant with the current medical literature of France, for the last twenty years, must be familiar with the name of M. Beau, as connected with a variety of questions pertaining to clinical researches. Few observers, in fact, are more frequently referred to by the French medical writers during the period just mentioned; but, if the recollections of the reader enable him to recall the scientific questions with which the name is associated, he cannot fail to be struck with the fact that, in general, writers have been accustomed to refer to the views of M. Beau, in order to dissent from or endeavour to refute them. Such, at all events, is the impression derived from our own reading of French medical works, and we have long since been led to expect, almost as a matter of course, whenever we meet with a citation of any of his opinions, to find that they are not in accordance with those of the author.

From the work which we now propose to review, we learn that the previous contributions of M. Beau to medical literature, have consisted in communications to the medical journals of Paris, and that they are, for the most part, contained in the *Archives de Médecine*. His articles have been numerous, falling but little short of fifty. Of this number, fifteen relate to diseases of the lungs and heart, being mainly devoted to questions pertaining, directly or indirectly, to auscultation as applied to the diagnosis of these diseases. The object of the present work is to reproduce and bring together the views contained in these fifteen memoirs, which have appeared, from time to time, during the last twenty years.

The work is not designed to be a complete exposition of the principles and practice of auscultation, but mainly to present and advocate anew certain doctrines peculiar to the author, and opposed to those which are commonly received. This being professedly the scope and character of the work, we shall regard it, as a reviewer, in that light. We purpose to direct our attention chiefly to the more prominent of these peculiar doctrines, and to analyze, with a due regard to brevity, the claims which the author sets forth in their behalf.

The author solicits of the readers of his work that they will, if possible, read it unbiassed by preconceived notions, and with the sole aim to discover the truth. He has a just appreciation, in the abstract, of the difficulty with which truth makes progress when opposed by settled convictions. What discoverer of new truth has not had abundant cause for impatience and dissatis-

faction at that principle of conservatism in the human mind which holds on with dogged tenacity to well-established error, fearful of novelty and innovation! There is, however, another phase of mental conservatism which may have presented itself less forcibly to the reflections of M. Beau—it is the pertinacity with which the mind adheres to its own creations. How seldom is it that the originator of new views is ever led to abandon them! How rare are the examples of authors who, publishing at different epochs, ever acknowledge the errors contained in their previous works; on the contrary, is it not an almost stereotyped mode of expression for an author to say that further observation, or experience, or reflection have only served to confirm the correctness of the conclusions to which he has been heretofore committed? If an assent to error involves an obstacle to the reception of new truth which is difficult to be overcome, how much greater is the prejudice in behalf of error when the latter has been not adopted but created by the mind which believes it to be true—the obstacle is then almost insuperable! We shall see whether the work before us furnishes occasions to illustrate most the tardiness with which scientific discoveries obtain credence, or the blind partiality which leads an author to continue to maintain, with zealous enthusiasm, peculiar doctrines that have been abundantly disproved.

M. Beau divides his treatise into two parts: the first part treats of auscultation of the lungs, and the second of auscultation of the heart and vessels. One-third of the volume is devoted to the former, and the remaining two-thirds to the latter. Each part is subdivided into two sections: the first section treating of physical signs, and the second of the different diseases, respectively, in their relations to these signs. We proceed to notice the portion of the work devoted to auscultation of the lungs.

The vocal sounds, normal and abnormal, occupy but little space. They are disposed of in about four pages. As regards the mechanism of the vocal sounds heard over the chest in health and disease, the author recognizes the principles of reverberation and conduction only, making no reference to the theory of consonance advocated by Skoda. Under the head of the normal sounds, the only novel statement which we observe is, that when the voice is produced by an act of inspiration, which it is asserted can be done after some practice, the pulmonary resonance is much more marked than when words are pronounced by an expiratory act. This fact we have not verified. Practically, however, it cannot be made of much service, inasmuch as in the cases of disease which present themselves for examination, we shall not find that patients are prepared by the necessary practice to be able satisfactorily to reverse the habitual mode of speaking during expiration.

Bronchophony and pectoriloquy are regarded merely as different degrees of resonance. This is the view taken by other authors; yet, certainly the distinction in character between these two signs is sufficiently defined. In bronchophony the *voice*, in pectoriloquy the *speech*, is transmitted. Now, not only may the voice be abnormally loud and near the ear of the auscultator without any transmission of speech, or, in other words, an appreciation of articulated words, but the pectoriloquy may be complete without intensity of vocal reverberation. In short, pectoriloquy may exist without bronchophony, as well as the latter without the former. This distinction is not generally made by practitioners who employ, more or less, physical exploration, a fact not to be wondered at, since the same remark is applicable, for the most part, to authors treating specially of physical diagnosis.<sup>1</sup> It must, however, be

<sup>1</sup> A distinction, hardly less marked, exists between merely increased vocal resonance and bronchophony. In the former, the reverberation or resounding of the

admitted that the distinction, in a practical point of view, is much less important than it would be, were it true, as was supposed by Laennec, that pectoriloquy is a diagnostic sign of a pulmonary cavity. M. Beau adds his testimony to that of others, to the occurrence of perfect transmission of speech in certain cases of pulmonary solidification. No mention is made of the transmission of whispered words, which, according to Walshe, is highly significant of an excavation. Our own observations, however, have led us to a different conclusion. In fact, we have oftener met with instances of solidification in which words spoken in whispers were transmitted, than with those in which ordinary pectoriloquy existed.

Without discussing the mechanism of ægophony, the author states that it does not pertain exclusively to pleurisy, but occurs occasionally in pneumonia. The united testimony of different observers has sufficiently established the correctness of this statement. He states that the sign may be produced by compression of the bronchi or trachea. He has observed it twice in cases in which this compression arose from aneurism of the aorta.

The respiratory sounds are considered at much greater length. Here we come to theoretical views which are peculiar, and on which he bestows considerable discussion. He embraces the normal respiratory sounds under the head of *souffle glottique*. In 1834, he submitted the theory that the tracheal, bronchial, cavernous, and vesicular respiratory sounds are all due to those produced in the upper respiratory passages; viz., the nostrils, pharynx, and larynx.<sup>1</sup> Authors of works on physical exploration, in the mean time, have generally referred to this theory and devoted to it consideration sufficient, in their judgment, to disprove it, but not enough to convince M. Beau of its incorrectness. So far from this, in 1840, he argued its merits in a paper contained in the *Archives de Médecine*; and, in the present treatise, he discusses the point still more elaborately, and with undiminished zeal.

This theory has found but few advocates. Dr. Spittal, of Edinburgh, has been its ablest supporter. Dr. Spittal, however, regards the sounds heard over the chest as laryngeal exclusively, and not guttural, as contended by M. Beau in his first publications. The latter, in the present treatise, appears to adopt the views of Dr. Spittal in this respect.<sup>2</sup> Dr. Spittal, availing himself of the three bronchial divisions of the trachea in the sheep, contrived an apparatus, by means of which he professed to demonstrate that the sounds emanating from the pulmonary vesicles are, in reality, produced in the larynx. To give an account of this apparatus would require too much space, and too tedious details. It is described and figured in the work before us. Such demonstrations are open to two important objections: 1. Artificial contrivances out of the body cannot be taken as representing the pulmonary organs *in situ* and in vital action; or, at all events, inferences drawn from the former and

voice is greater than in health; in the latter the voice is abnormally transmitted, that is, nearer the ear of the auscultator. Here, too, as in the case of bronchophony and pectoriloquy, the vocal resonance may be greatly increased without bronchophony, and *vice versa*.

<sup>1</sup> M. Beau acknowledges his indebtedness for this theory to M. Chomel, who propounded an inquiry in 1824 whether the respiratory sounds might not admit of such an explanation. M. Chomel, however, makes no reference to it in the last edition of his work on Pathology, issued during the present year.

<sup>2</sup> The author, however, is careful to claim that he has not deviated from his original views. He says the title *bruit guttural* was given rather to indicate the approximate than the actual seat of the sound. We should have not thought less of his impartiality had he evinced less tenacity in maintaining his consistency. However it may be in politics or morals, in science consistency is not always a jewel.

applied to the latter, are to be received with great caution. It is impossible for art to compass all the elements involved in the performance of respiration. We can never be certain either that nothing essential has been omitted, or that something giving rise to important modifications has not been superadded. In view of this objection, such experiments are only entitled to a certain degree of weight as corroborative proof in behalf of conclusions based on observations made on the living body. — 2. Contrivances which are somewhat complicated, like the apparatus of Dr. Spittal, require too much trouble for the experiments to be repeated by many; and, hence, we have limited testimony as to the results. Now it is, alas! but too true, that with no other disposition than that of truth-seeking, a mind biassed in favour of certain views, is liable to judge, even in matters of plain observation, by impressions received through a distorted medium. Honesty of purpose, although a *sine qua non*, is not the only requisite for a faithful observer. Freedom from pre-conceptions is hardly less essential. Here lies the secret of a large proportion of the false facts with which medical science abounds!

Exclusive of Dr. Spittal's experiments, on what does M. Beau base his theory? So far as the results of direct observation are concerned, mainly on the fact that when the sounds produced in the upper passages, *i. e.*, chiefly at the glottis, are voluntarily suspended in respiration, the respiratory murmur ceases to be heard on auscultation, and *per contra*, the latter are developed in proportion as the former are intense. Now, in the first place, it is difficult, if not, indeed, impossible to determine by direct observation, this relation between the sounds produced at the glottis and those heard over the chest. Auscultation cannot be practised in both situations simultaneously, and every auscultator must be aware that the respiratory sounds are by no means uniform as regards intensity with successive acts of respiration. They are constantly fluctuating in this respect. It is, therefore, evidently a theoretical assumption to say that when the vesicular murmur is feeble or absent, it is in consequence of a corresponding diminution or deficiency of a sound generated at the glottis. That, in general, the intensity of sound in these situations should correspond, is a rational inference from the fact that the force of the current of air, whether weak or strong, will affect equally the superior and inferior air-passages. It is difficult, indeed, to understand how the sounds at the glottis can be voluntarily repressed or suspended without, at the same time, diminishing the force of the current of air in the bronchial tubes and vesicles. The possibility of doing so, although assumed without discussion by M. Beau, certainly is questionable. But there is a mode in which observation may be made to bear upon this point; *viz.*, by comparing, in different individuals, the relative intensity of the respiratory sounds in the larynx and over the chest. Is it found to be a rule that in persons with loud laryngeal respiration the vesicular murmur is also intense, and *vice versa*? This should be the case if the theory of M. Beau be correct. We happen to possess a collection of observations made on healthy persons in whom the sounds heard over the larynx, trachea, bronchi, and pulmonary organs were recorded, without any reference to this question. On referring to these notes, a rule of correspondence as regards the intensity of the sounds in the upper and lower passages, in habitual respiration is found not to hold good. If such a rule exists, the exceptions are so numerous as to disprove the dependence of the latter on the former.

The characters which belong to the vesicular murmur, contrasted with those of the laryngo-tracheal respiration, it would seem, should alone suffice to disprove M. Beau's theory. The laryngo-tracheal respiration embraces a sound

during inspiration and during expiration; the latter being more intense and prolonged than the former, if the respiratory acts are forced. The vesicular murmur very often consists solely of an inspiratory sound, and if a sound of expiration be present, it is short and feeble. M. Beau thus accounts for this difference:—

“The *bruit glottique* during inspiration penetrates the vesicles with the current of air which goes to fill them, and divides itself, so to speak, into an infinite number of minute isolated *bruits* which seem to be produced beneath the part of the thorax where they are perceived by the ear; on the other hand, the *bruit glottique* during expiration tends to reverberate through the pulmonary parenchyma at the moment when the air which conducts the sound leaves the vesicles. The *bruit* therefore gives rise to are verberation which is very imperfect. It gives the impression of a confused echo occurring in the large tubes, which with difficulty traverses the left parenchymatous layer of lung which intervenes.” (P. 18.)

Notwithstanding this explanation, if the vesicular murmur were, in fact, produced at the glottis, and transmitted by reverberation, we should expect the expiratory sound to be oftener present and more intense than it is found to be in view of the greater intensity and direction of this sound over the larynx.

That the receding current of air during expiration is not an insuperable obstacle to the transmission of sound from the superior air-passages, is shown by the distinctness with which the whispering *souffle* is heard over certain portions of the chest in health. But, assuming that the *bruit glottique*, in other words, the laryngeal respiration, is transformed into the vesicular murmur by reverberation, how is the fact to be explained that the inspiratory sound is longer in the latter than the former? Does the sound become prolonged by being transmitted? How is the variation in pitch to be accounted for? The vesicular murmur is notably lower in pitch than the laryngeal respiration. Again, how is it that the *bruit*, during its transmission, undergoes such a marked change in timbre or quality? In the latter respect, the vesicular murmur differs in a striking manner from the sound heard over the larynx. We shall content ourselves with merely suggesting these points, without arguing them. Indeed, it seems almost superfluous to discuss the merits of this theory since experimental observation on the living and dead body appears to have demonstrated its incorrectness. In cases in which tracheotomy is practised, the *bruit glottique* is, of course, suspended, yet the vesicular murmur is found to continue. MM. Barth and Roger give a report of experiments in which the trachea was divided in inferior animals; respiration, carried on without the air passing through the larynx, nevertheless was accompanied by the vesicular murmur. Artificial respiration, after death, through the trachea separated from the larynx, was accompanied with the same result. M. Beau attempts to dispose of these experiments by supposing that an abnormal sound was produced at the aperture into the trachea, or the divided extremity of the latter, and that this sound replacing the *bruit glottique* gave rise to the respiratory murmur by transmission. But such a sound did not exist in all the cases, and when it was observed it differed from the sound produced at the glottis while the vesicular murmur was unchanged. Moreover, MM. Barth and Roger state that, in one instance, this sound was in fact transmitted, and could readily be distinguished from the coexisting vesicular murmur.

Our readers will perhaps think that we have devoted too much space to the notice of this theory. We should be disposed to enter into a full discussion of

it, if by so doing we could hope to relieve authors of works on auscultation of the apparent necessity to devote more or less space to a refutation of its claims to be regarded as the exposition of the mechanism of the normal respiratory sounds. We will add a single consideration, which occurs to us at the moment. If the vesicular murmur be due to the transmission of the *bruit glottique*, the intensity of the former should gradually diminish in proceeding downward over the chest. The author, in fact, states this to be the case, and adduces it as an argument in favour of his theory. Now, in certain persons the vesicular murmur at the base of the chest behind is quite as intense, if not more so, than at the summit of the chest in front. Auscultation of the chest in a series of healthy subjects will supply the proof of the correctness of this assertion.

The inquiry, "What is the mechanism of the vesicular murmur?" were we to pursue it, would lead to an extended discussion. We cannot, however, forbear bestowing on it a few words. That the murmur is produced solely by the friction of the air, in its passage into and from the vesicles, as supposed by Laennec, we do not believe. The truth probably is, that the air in the vesicles and smaller tubes is changed but to a limited extent as a direct consequence of the respiratory movements. On this point, Lehmann says:—

"We should form a very erroneous idea of the motion induced by this mechanism (the respiratory movements), were we to conceive that it was able to agitate the whole of the air contained within the cavity of the chest. For even when the contraction is relatively considerable, only a small fraction of the air is expelled, and an equally small proportion admitted by its expansion; hence it is only in the wider air-canals that the air can be absolutely changed, whilst in the narrower vessels there is only an undulating current of the stagnant air-column, induced by the contractility of the walls. The change, therefore, depends solely upon the different degrees of diffusibility of the gases. However simple this latter circumstance may appear, Vierordt has the merit of being the first who experimentally illustrated these physical relations."<sup>1</sup>

It is surprising that M. Beau has not availed himself of this view, in order to support his theory, indirectly, by disproving that commonly received. We would submit, as the most rational explanation of the vesicular murmur, that it is produced by the separation of the walls of the cells and intercellular passages which, to a greater or less extent, come into contact as the lungs collapse in expiration. The lungs collapse in this respiratory act, it is true, but partially; nevertheless, a certain proportion of the cells must be more or less deprived of air. The disruption of the surfaces in contact and slightly adherent, when the cells are dilated in the act of inspiration, gives rise to the vesicular murmur, or, at all events, is the source of the peculiar character of sound (the vesicular quality) by which this murmur is distinguished. This hypothesis will serve to account for the vesicular murmur being so often heard only during inspiration, and for the absence of the vesicular quality in the expiratory sound when the latter is heard. It will account, also, for the prolonged duration of the inspiratory sound. It enables us to understand why the vesicular murmur is intense in proportion to the duration and force of the preceding expiratory act; as, for instance, directly after coughing, the walls of the cells coming into contact to an extent proportionate to the completeness of the expiration and consequent collapse of lung. Moreover, the greater intensity of the vesicular murmur in children (puerile respiration) is rendered intelligible by this hypothesis. The greater mobility of the thoracic walls permits a greater extent of collapse of lung in the expiratory act in early life.

Regarding the normal respiratory sounds and their abnormal modifications

<sup>1</sup> Physiological Chemistry, Am. ed., vol. ii. p. 428.

as emanating from the larynx, M. Beau distinguishes them as the superior or supra-clavicular sounds, and he applies to the adventitious pulmonary sounds the names *inferior*, *infra-clavicular*, or *thoracic*. The latter he divides into *intra-pulmonary* and *extra-pulmonary*. The former include all the bronchial and vesicular râles, and the latter the pleural or friction sounds. We proceed to notice very briefly certain positions which the author takes in this portion of the work.

The division of bronchial râles into *vibrating* and *bubbling* he claims as original. It is generally attributed to M. Raciborski.

Of vibrating râles he recognizes the varieties generally adopted, viz., sibilant and sonorous or snoring; and he adds a new variety, which he calls a *râle insonore*. The intrinsic characters of the latter he does not distinctly point out. It is apparently an approximation to, rather than a well-developed *râle*. The title implies this. He states that it may be distinguished from the normal vesicular murmur by its being more or less circumscribed in the area over which it is heard with its *maximum of intensity*. We have no difficulty in understanding the sign to which he refers. The propriety of considering it as a distinct râle may be doubtful; but it should be understood, in order to avoid errors. It is sometimes confounded with an abnormal intensity of the vesicular murmur, and hence the latter is said to belong to certain cases of bronchitis. Again, it is confounded with what is called *rude* respiration, the latter properly denoting an approximation to the bronchial respiration.<sup>1</sup> Thus confounded, its pathological significance is liable to be misinterpreted. Dr. Bowditch applies to a sound, which we suppose to be the same, the title of "mucous respiration," and points out its occurrence in connection with the circumscribed bronchitis occurring in proximity to a tuberculous deposit.

The vibrating râles, according to M. Beau, are produced solely by an obstruction of the bronchial tubes from the presence of mucus, and are never due to swelling of the mucous membrane. The reason which he assigns for the latter statement is, that a swelling of the membrane must persist for a certain period, and this cannot be reconciled with the constant variations from one moment to another which characterize these râles. We can conceive, however, of local congestions occurring within the bronchial tubes, diminishing more or less their caliber, or producing complete occlusion, and disappearing in a short time, even lasting but a few moments. Every one has experienced transient stuffing of the nostrils from some accidental cause which comes and goes within a very brief period, being sufficient, while it is present, to prevent respiration through these passages; and if this may occur here, there is no good reason why it may not in the bronchial tubes. We think that M. Beau is in error in denying that the râles are ever produced by swelling of the membrane; but that they are generally caused by the presence of tenacious mucus is probable. A test of their being due to the latter is their disappearance or transference to another situation after an act of coughing.

The bubbling râles he divides into the gurgling, mucous, moist crepitant, and dry crepitant. The moist crepitant râle is that generally known as a subcrepitant or a fine mucous râle, being produced within the minute bronchial branches. The dry crepitant râle is the true crepitant characteristic of the first stage of pneumonia. This distinction, based on the sensation of moisture in the one case and dryness in the other, is well founded. The author is led to doubt whether

<sup>1</sup> M. Beau applies to the modified respiratory sounds heretofore called generally, by writers on physical exploration, *rude*, the name *tubo-vesiculaire*. The writer has suggested a name analogous in its significance, viz., *broncho-vesicular*.

the dry crepitant is a bubbling râle, and suggests that it is owing to an abnormal dryness of the air-cells, incident to the early stage of inflammation. He says:—

“I should not hesitate to adopt this manner of accounting for the production of the dry crepitant râle, if it were fully demonstrated that inflammation occasions dryness of the pulmonary vesicles.”

M. Beau has probably never heard of the ingenious and beautiful explanation of the crepitant râle submitted by our countryman, Dr. Carr. We had the pleasure of stating it to one of the most distinguished of the Parisian teachers, and we were gratified with the readiness with which he admitted it to be the most satisfactory theory yet offered. We have a right to presume that our American readers are familiar with it, and, therefore, that it would be supererogatory to reproduce it here. M. Beau appears to think, because the sound is characterized by dryness, that it must denote an abnormal dryness of the parts in which it is produced. But this is a *non sequitur*. Nothing can be drier than the sound produced by alternately pressing together and relaxing the pressure of the thumb and finger moistened with a little paste or gummy solution. The dryness, when the crepitant râle is in this way imitated, is not less marked than when a lock of hair is rubbed between the thumb and finger, near the ear, after the plan proposed by Dr. Williams. We do not doubt that Dr. Carr's explanation will, in time, be adopted, and, as a matter of personal reputation, we would rather be entitled to the merit of having originated it, than to have been the author of any one of the theories peculiar to M. Beau.

The crackling sounds, occurring in cases of pulmonary tuberculosis, the author regards as belonging either in the class of humid or dry crepitant râles; and in this opinion we believe him to be correct.

With reference to the three varieties of *crumpling* sounds (*froissement pulmonaire*), as described by Fournet, we are gratified to find that M. Beau offers the same explanations of two of them which we have elsewhere done.<sup>1</sup>

The *bruit de cuir neuf* he regards as neither more nor less than a pleural friction sound, and the *bruit plaintif gémissant* is a vibrating râle. The *bruit rapide et sec que l'on obtient en soufflant sur du papier sec*, or a tissue-paper sound, he supposes to be a transmitted *souffle glottique*. The last-mentioned explanation is open to the objections which apply to the author's theory of the normal respiratory murmur. The sound is probably simply a crepitant râle.

Under the head of the extra-pulmonary, or pleural sounds, we find nothing peculiar to the author, and we proceed to pass rapidly in review the second section, devoted to pulmonary diseases.

Laryngitis, croup, spasm of the glottis, and *œdema glottidis*, are considered very briefly. With respect to these affections, the author does not offer any opinions particularly novel. In treating of tracheitis and bronchitis, however, he advances views which are at variance with those commonly entertained. Inflammation limited to the trachea is generally thought to be extremely rare. It is usually regarded as almost always associated either with laryngitis or bronchitis. M. Beau, on the contrary, thinks that it is quite common, occurring much oftener than bronchitis; in fact, he considers the majority of the cases of so-called bronchitis, as purely cases of tracheitis. The reasoning on which this opinion is founded, is as follows: Inflammation of the bronchial mucous membrane, accompanied by an abnormal secretion of mucus, in more or less abundance, must, except the inflammation be quite limited, give rise to obstruction sufficient to occasion an emphysematous condition of the lungs, and, proportionately, dyspnoea. Under these circumstances, too, râles will

<sup>1</sup> *Vide* Physical Exploration, etc., by the reviewer.

invariably be found over the chest. If, therefore, when inflammation is manifestly seated somewhere in the air-passages, there are no thoracic râles, no evidences of emphysema, and no dyspnoea—assuming the larynx to be unaffected—the affection is tracheitis. The presence of tracheal râles is not necessary to the diagnosis; for, owing to the size of the trachea, and the facility with which the mucus is expelled from this situation, in ordinary tracheitis, râles are not developed. It is clear that on these conditions bronchitis does not exist in a large proportion of the instances in which its existence is assumed by medical practitioners. The reasoning by which the author sustains his position is purely theoretical. Will it bear critical analysis? We throw not. That bronchial râles are often wanting in cases of so-called bronchitis, will be admitted. Probably it oftener happens that they are wanting at the particular moments when auscultation is practised, than that they are altogether absent, for we know that they disappear and reappear at different times, being rarely constant during any period of the disease. But every practical auscultator must admit that bronchial râles are not infrequently more or less abundant in cases of so-called bronchitis, without the physical evidence of emphysema, and without dyspnoea. M. Beau assumes that these three diagnostic points are generally associated. This assumption is certainly disproved by clinical facts. Bronchial râles, unusually constant and present in a marked degree, do not necessarily involve any appreciable embarrassment of respiration. He accounts for the supposed necessity of dyspnoea in bronchitis, thus: the obstruction from the presence of mucus in the bronchial tubes, is overcome by the inspiratory movements; while expiration, which is effected mainly by the force of elasticity, is insufficient for the free expulsion of air, which consequently accumulates and reacts upon the vesicles. This reasoning will again come up under the head of emphysema. We may simply state here that M. Beau overlooks the fact of the inspiratory being the powerful act only during tranquil respiration. With muscular co-operation, either voluntarily or instinctively, to overcome an obstacle in the air-passages, the expiratory exceeds the inspiratory act, in force, by about one-third, according to the experiments carefully made with reference to this point, by Mr. Hutchinson. We cannot stop to discuss this subject, more than others, at length. The impartial reader, we think, here, as in other portions of the work, cannot fail to be struck with the facility with which the author arrives at pathological conclusions, not less important than novel.

In treating of asthma, M. Beau ignores entirely the hypothesis of spasm advocated by M. Amédée Lefèvre, in a prize essay, published in 1834, and generally adopted by medical writers. He recognizes as the sole pathological condition productive of asthmatic paroxysms, the presence of tenacious mucus in the bronchial tubes. To sustain this view, he is obliged to deny that an attack of asthma ever occurs instantaneously, and to assert that in all cases it is followed by more or less expectoration. That an asthmatic paroxysm often ends before any expectoration takes place, he cannot but acknowledge, but in such cases he insists that the obstructing mucus is removed from the small into the larger tubes, where it ceases to interrupt the passage of air, and is subsequently expectorated. According to this view, asthma is always neither more nor less than bronchitis affecting the smaller tubes. We incline to the opinion that in the statement just made, the author is correct; but that the dyspnoea in asthma is due exclusively to the presence of mucus, seems to us improbable in view of the small quantity expectorated even after some violent attacks. The quantity of mucus, in other words, is insufficient to account

for so much embarrassment of respiration. The theory that the latter arises exclusively from spasm, on the other hand, is questionable. There remains a pathological condition which M. Beau does not recognize, viz., swelling of the bronchial mucous membrane. We may analogically infer that swelling in the smaller tubes sufficient to occasion dyspnoea more or less urgent, may occur suddenly, and last for a few hours only, just as we observe it to take place in the nostrils. This appears to us the most rational explanation of asthma; and, as thus regarded, the affection, is, as M. Beau supposes, neither more nor less than bronchitis affecting the smaller tubes. We speak now of asthma occurring irrespective of emphysema.

The author passes from asthma to the affection just named, viz: emphysema. He treats only of the vesicular variety of emphysema. The theory of the mechanism of its production which he advocates is, that it is due to the reaction of the air within the vesicles upon the walls of the latter, when, from the presence of tenacious mucus, there is obstruction in the bronchial tubes. This reaction, of course, occurs in consequence of obstruction to the current of air in expiration; but the dilatation of the cells does not result from the difficulty of effecting the expulsion of air by the expiratory movements in respiration so much as from the existence of obstruction in connection with paroxysms of coughing. To quote the author's words—

“The accumulation of air depends on the fact that, being forcibly acted on by the movements incident to coughing, and with difficulty overcoming the obstacle afforded by the presence of mucus in the bronchial tubes, it reacts on the vesicles, which it dilates.” (P. 146.)

Now, if the intensity of the respiration be increased, either voluntarily or instinctively, as we have seen, the expiratory is a more forcible act than the inspiratory. But, however this may be as regards respiration, there can be no question that the force with which the air is expelled with the act of coughing is vastly greater than that with which the air is inspired. How, then, can a collection of mucus furnish an obstacle which the violent expiratory effort in coughing with difficulty overcomes, but which does not obstruct the current of air in inspiration? This question suffices to show the absurdity of the theory. But, were we to pursue the subject further, it would be clear from the arrangement of the bronchial tubes, consisting of a series of branching cylinders successively diminishing in caliber, that a movable obstacle, like a plug of mucus, is likely to produce an obstruction to the passage of air much greater in inspiration than expiration. As pointed out by Dr. Gairdner, in the former case the mucus, moving in a direction from the larger to the smaller tubes, acts like a ball-valve, and limits or prevents the entrance of air into the cells over a greater or less number of lobules; while in the latter case, moving in an opposite direction, the tendency is to a removal of the obstruction. The ingenious theory of Dr. Gairdner, which attributes the origin of emphysema to collapse of more or less of the pulmonary lobules, produced by bronchial obstruction in the manner just mentioned, is not alluded to by M. Beau. Both theories agree in considering bronchial obstruction as the point of departure for the production of this lesion; but it is curious that precisely opposite effects of the obstruction are described by these two authors. M. Beau says the result is a dilatation of the cells from the difficulty of the egress of air during the expiratory efforts incident to coughing. Dr. Gairdner says that the obstruction affecting chiefly the ingress of air in inspiration, collapse of more or less of the lobules ensues, and consequently an abnormal expansion of the remaining lobules from the atmospheric pressure. So far as the comparative merits of

the two theories are concerned, we do not see how any one can hesitate to give preference to that of Dr. Gairdner.<sup>1</sup>

M. Beau devotes considerable space to the discussion of the conclusion to which Louis was led by his researches, viz., that the production of emphysema does not necessarily or generally involve the pre-existence of bronchitis, but that it is a primary or spontaneous lesion occurring irrespective of any mechanical agency, being due to an abnormal condition of the force which presides over the development of hollow organs. In contending for the dependence of emphysema on bronchitis in the majority of instances, we must think M. Beau is correct, albeit this opinion is opposed by so accurate and truth-loving an observer as Louis. In not accepting the conclusion at which the latter arrives relative to this point, we are not guilty of the presumption of doubting either his capacity or honesty. In a large proportion of the cases of emphysema met with in the wards of a hospital, the affection has existed for a greater or less period, often for many years, having been perhaps developed in childhood. Under these circumstances, it is often impossible to obtain reliable information as to whether the symptoms of the emphysema or those of bronchitis had precedence. That the latter precedes in certain instances we know, for it has occurred to us, within the past few years, to have witnessed the development of emphysema, as it were under our eyes, in two patients whom we had repeatedly examined while suffering from persisting bronchitis, before dilatation of the vesicles had ensued.

Finally, on the subject of emphysema, the author makes a remark which is worthy of being borne in mind, with reference to the portion of the lung most prone to become affected with this lesion. Pathologists generally are agreed that the superior and anterior portion is especially apt to be found in an emphysematous condition. M. Beau thinks this is not certain, inasmuch as the dilatation of the cells in the posterior portion cannot be ascertained by the gross appearances, in consequence of the existence here of hypostatic congestion.

Under the head of pneumonia we meet with nothing which, from its novelty, claims notice. The same is true of pleurisy, pneumo-hydrothorax, gangrene of lung, pulmonary apoplexy, and œdema, except that in the latter affection the author differs from pathologists in thinking that the serous effusion takes place, not into the air-cells, but into the connecting areolar tissue.

Under the head of pulmonary tuberculosis, the only point on which we desire to comment is the significance of a prolonged expiration. It is well known that our lamented countryman, James Jackson, Jr., first directed attention to the importance of studying the expiratory murmur. He showed that a prolongation of the expiratory sound was frequently a sign of the presence of tubercles, and that, in the development of the bronchial respiration, the abnormal change is manifest in the relative direction of this sound. Jackson studied only the characters of the expiration which pertain to duration and intensity; those relating to quality, and especially pitch, were left for other observers. M. Beau states that a prolonged expiration much oftener denotes a cavity than the presence of crude tubercles, and he adds:—

“I am not aware of any sign which may enable us to distinguish the prolonged expiratory murmur due to crude tuberculization from that due to cavities.”

<sup>1</sup> For Dr. Gairdner's views, vide *On the Pathological Anatomy of Bronchitis and the Disease of the Lung connected with Bronchial Obstruction*. Edinburgh, 1850. For review of this work, vide *British and Foreign Medico-Chirurgical Review*, April, 1853. These views are not unknown in France. They are adopted by Vallex in the last edition of his *Guide du Praticien*.

This distinction may be made without difficulty, if the description which we have elsewhere given of the expiratory sound in the bronchial and cavernous modifications of respiration are based on correct observation.<sup>1</sup> According to this description, in bronchial respiration the expiratory generally exceeds the inspiratory sound in intensity, and more especially in pitch. The reverse obtains in the cavernous respiration; the expiratory sound is less intense and lower than the inspiratory. We have here a means of discrimination which, if reliable, is certainly of practical importance. Theoretically, M. Beau could not very consistently admit this distinction, inasmuch as he refers the origin of the cavernous as well as of the bronchial and vesicular respiratory sounds to the glottis.

The number and character of the peculiar views entertained by M. Beau, pertaining to auscultation as applied to the respiratory organs, prepares the reader to expect a similar series in the portion of the work which treats of the heart. In this respect, the reader's expectation is not disappointed. The author contends for theories of the mechanism of the movements and sounds of the heart in health and disease, strikingly at variance with the conclusions which others have deduced from the results of investigations bestowed on this subject. We shall devote the remainder of this article to a brief notice of these theories.

The question whether the apex of the heart elongates or contracts during the systole of the ventricles, has long been mooted. According to Vesalius, and other of the older anatomists, the vertical diameter of the organ is increased. This was the opinion of Harvëy. Subsequent observers have generally described the systolic contraction as extending to all the diameters.

Some, however, have been convinced that this description is incorrect, and that the heart is lengthened during the systole of the ventricles.

Doctors Pennock and Moore were led to this conclusion by their experiments in Philadelphia in 1839. If we are correctly informed, Professor Dalton, of New York, has arrived at the same conclusion, and is accustomed to verify its correctness in his vivisections performed in the class-room. M. Beau believes that the heart is shortened during the ventricular systole. It would seem that this is a question which might be easily settled by observation. It is manifestly to be thus settled, and not by *à priori* reasoning from the direction which the muscular fibres are found to pursue on dissection of the heart. May it not be the case that different species of animals, or different individuals of the same species; or, again, the heart of the same individuals under different circumstances pertaining to the circulation, differ in this respect, shortening occurring in some and elongation in other instances?<sup>2</sup> This suggests itself as affording an explanation of a singular discrepancy of opinion on a matter respecting which, if there be uniformity in fact, one would think all observers should be agreed.

Most observers agree in attributing the impulse of the heart in the præcordia to the movements of the apex during the ventricular systole. M. Beau, however, holds a different opinion. He considers the impulse as occurring during the ventricular diastole. This theory, which may be distinguished as

<sup>1</sup> *Vide* Prize Essay on Variations in Pitch of Percussion and Respiratory Sounds, 1851; and Physical Exploration, etc., 1856.

<sup>2</sup> We can easily imagine that this is a difficult point of observation, if small animals are employed for the experiments, such as the frog or birds; and in larger animals the spiral movement of the heart probably renders it somewhat difficult to determine whether shortening or elongation occurs.

the theory of diastolic impulse, enunciated by M. Beau more than twenty years ago, has a few supporters in Europe, and in this country has found an able advocate in Professor Alfred Stillé. The theory involves other peculiar views concerning the mechanism of the heart's action. According to M. Beau, the ventricular diastole is due to the systolic contraction of the auricles. The ventricles, after their systole, are passive; they do not dilate, as is generally supposed, either from their elasticity or as a result of the contraction of certain of the muscular fibres which enter into the composition of their walls, but they are dilated solely by the distending force derived from the current of blood impelled into their cavities, by the contraction of the auricles. The auricles, thus, are in fact, the active agents in the dilatation of the ventricles. The force of the current of blood driven into the ventricle by the auricular contraction, elongates the latter, and gives to the organ the movements against the thoracic wall which occasion the impulse or beating in the præcordia.

The diastolic theory involves an order of succession in the movements of the auricles and ventricles different from that generally supposed to take place. M. Beau takes as a point of departure the contraction of the auricles. The auricular systole causes the diastole of the ventricles, and the ventricular contraction immediately follows. Then occurs the period of repose of the organ; viz., the period which elapses from the completion of the ventricular, to the commencement of the next auricular systole. According to the commonly received descriptions, the diastole of the ventricles immediately succeeds their contraction, and the period of repose is supposed to be after their diastole, before the succeeding systole. The distinctive feature in the theory of M. Beau, so far as concerns the order of succession of the movements, relates, then, mainly to the occurrence of the diastole of the ventricle. According to this theory, it occurs just *before* the ventricular systole, and is *preceded* by a period of repose. According to the current doctrine, it occurs immediately *after* the ventricular systole, and is *followed* by a period of repose.

We have called these views of M. Beau a *theory*. The points, however, which have just been mentioned are not properly subjects for theoretical discussion in the vulgar acceptation of this term. They are points to be settled by simple observation. Does the heart, as determined by the sight and touch, perform movements adequate to the production of the well-known impulse in the præcordia during the ventricular systole or diastole? Do the senses afford evidence that the ventricles dilate immediately after they contract, prior to any apparent contraction of the auricles, or does this dilatation take place after the lapse of a certain time, and do the auricles previously contract? These questions are to be answered by an appeal to facts ascertained by exposing the heart to view in inferior animals during life, and by witnessing its movements in the few remarkable instances of malformation in which either this organ has been situated exterior to the thoracic wall, or, from deficiency of the sternum and costal cartilages, it has been open to inspection *in situ*. Several instances of these two kinds of malformation are recorded in the annals of medicine; and we need not remind those of our readers who have bestowed any attention on this subject, that numerous experiments have been made on a grand scale in London, Dublin, Edinburgh, and in this country.<sup>1</sup> To repro-

<sup>1</sup> The reader will find these experiments detailed in full in *Hope's Treatise on Diseases of the Heart*, American Edition, with Additions, by Dr. Pennock. Also a *résumé* in the last edition (1854) of the *Traité Pratique D'Auscultation, par Barth et Roger*. The latter work contains a full discussion of the theories of M. Beau.

duce these experiments and observations, or even to present a digest of the results, would occupy too much space, and is foreign to our present purpose. With some discrepancies relating to points of more or less importance, they furnish the basis of the doctrine relating to the impulse of the heart and the order of succession in the movements of its parts, which are commonly received, and are opposed to the views of M. Beau. How does the latter sustain his theory? He adduces the results of experiments performed by himself on frogs, rabbits, dogs, and birds. As regards the animals selected, and the manner of performing the experiments, there is room for criticism; but, waving this, how are we to account for the discrepancy of his results with those of other observers? Evidently by the same rules of evidence which should influence a judge or jury in courts of law when conflicting testimony is rendered by different witnesses. Assuming that a witness is perfectly honest, if it appear that he is interested or prejudiced, his testimony carries but little weight. Again, if there are numerous witnesses, and the great majority concur as to certain points, this is a fair ground for presuming that the few who offer rebutting testimony are in the wrong. Judged by these rules, the results of M. Beau's experiments are to be received with distrust. They were made, in great part, to confirm theoretical views which he had advanced many years before. The experiments made by the London, Dublin, and Philadelphia committees were made, on the other hand, in the presence of those who were not thus committed. Numerically, the testimony in behalf of the results obtained by the latter greatly preponderates.

In saying that the foregoing points pertaining to the movements of the heart are to be settled by simple observation, we would not be understood to attach no importance to inferential conclusions. In fact, the incorrectness of the theory of diastolic impulse, and the theoretical views which it involves, may, we conceive, be conclusively shown without resorting to an ocular examination of the heart in action. The impulse of the heart, and that of the arteries situated near the central organ of the circulation, are found to be synchronous. Now, admitting, as M. Beau states (and in this respect the observations of others concur), that the systole of the ventricle succeeds very quickly that of the auricle, if the heart's impulse be due to the latter, there should be a distinctly appreciable interval between it and the diastolic impulse of the arteries situated ever so near the heart. Inferentially, it is quite inconceivable that the amount of muscular structure contained in the valves of the auricles, is sufficient to propel the blood into the ventricular cavities with a degree of force adequate to produce the præcordial impulse, more especially when the latter becomes as violent as it frequently does in palpitations. If the auricles were indeed capable of contracting with the force requisite to account for the heart's impulse, it is inconceivable that regurgitation into the veins should not habitually occur sufficiently to give rise to venous pulse in the jugular veins at least, such as we find does occur when regurgitation through the left auriculo-ventricular orifice takes place during the ventricular systole, owing to insufficiency of the tricuspid valves. Again, it is irrational to suppose that, after the systole, the ventricle remains firmly contracted until a forced dilatation results from the action of the auricle. The ventricles and auricles communicate somewhat like chambers with folding doors, which admit of being opened with the slightest force, but only in one direction. What is to hinder the passage of blood from the auricle into the ventricle by the force of gravitation, added to that derived from the column of blood pouring into the former from the veins, except the ventricle be closed by an active contraction of its muscular walls? This persisting contraction pre-

cludes any period of muscular repose. M. Beau meets this objection by assuming that the ventricular systole is succeeded by a state of tonic contraction adequate to resist the ingress of blood until it is poured into the cavity by the auricular contraction. This, besides being hypothetical, is highly improbable.

The study of the mechanism of the normal sounds of the heart has occasioned great diversity of opinion, and the subject must be considered still open for discussion and fresh researches. This remark applies more especially to the first sound. Most physiologists, we believe, are agreed as regards the dependence of the second sound on the arterial valves; but admitting the latter to be concerned in their production, the mode in which they are produced, that is, the physical principles involved, is not fully settled. Among the twenty-seven theories of the heart's sounds, enumerated by MM. Barth and Roger, the theory of M. Beau is included, and perhaps is as unsatisfactory as any in the list. But it is to be considered that in theorizing on this subject, M. Beau labours under the disadvantage of being obliged to conform to his theory of the movements of the heart. The first sound, according to the theory of diastolic impulse, is not synchronous with the systole, but with the diastole of the ventricles. M. Beau attributes it to the shock caused by the current of blood driven by the auricular contraction into the cavity of the ventricle, and striking abruptly against the inferior portion of this cavity. Without discussing the intrinsic merits of this explanation, it is sufficient to say that it cannot be true if the theory of diastolic impulse be false. Its claims are thus summarily disposed of. The second sound M. Beau attributes to the column of blood arising at the auricles from the veins, and impinging against the auricular walls. This hypothesis strongly illustrates the difficulty with which an explanation of the second sound is made to harmonize with the author's theory of the heart's movement. It would be, however, needless to subject the arguments adduced in its behalf to critical analysis, or to show its improbability and inadequateness, for it is disproved by the facts determined by repeated experiments, establishing beyond a reasonable doubt, that the second sound is produced at the arterial orifices of the ventricles, and that the semilunar valves are concerned in its production.<sup>1</sup>

M. Beau recognizes certain accessory normal sounds, which are generally combined with the first sound of the heart, and serve to reinforce and to modify its character to some extent. One of these accessory sounds is the ringing intonation, called by Laennec the *cliquetis métallique*. M. Beau attributes this to the striking of the apex of the heart against the thoracic wall. We believe this to be the correct explanation. If the ribs are pressed with the finger, while the stethoscope is applied at a situation not far removed from the point of percussion, the note elicited has an amphoric quality. We can understand that this intonation will be marked especially when the stomach is distended with gas. Another accessory sound is the *bruit musculaire*. M. Beau attributes this to the ventricular systole which succeeds the auricular contraction so quickly as to cause this *bruit* to be incorporated with the first sound.

M. Beau arranges the rhythmical succession of the heart sounds in a manner peculiar to himself. He regards the first and second sounds as equal in duration, and the length of the interval between the second and the first sound as the same as either of the sounds. Musically expressed, the succession of

<sup>1</sup> *Vide* Experimental Researches, contained in *Hope's Treatise*, Amer. ed.

sounds is represented by triple time, the sounds being indicated by two crotchets, and the silence by a rest.



Connecting with each of the beats in the bar (according to this representation), the movements of the heart which belong to it, after the theory of M. Beau, the result is as follows: The first beat or crotchet embraces the contraction of the auricles, the dilatation of the ventricles, and the ventricular systole. These movements, in other words, are all involved in the first sound. The second beat, or sound, embraces simply the dilatation of the auricles. During the *rest*, or silence, repletion of the auricle takes place—the ventricles remaining contracted and empty.

In the foregoing arrangement, the author differs from nearly all other observers as respects the relative duration of the first and second sounds, the former being generally reckoned nearly twice as long as the latter. He overlooks the brief period of silence between the first and second sound, and he estimates the period of silence following the second sound at a higher fraction than is usually employed, viz., at one-third.

The abnormal sounds are divided into the extra and intra-cardiac murmurs. The extra-cardiac or attrition sounds are considered very briefly, the author, under this head, presenting simply a succinct statement of well-known facts. As respects the intra-cardiac murmurs, however, he indulges his fondness for original views, and, in fact, his theories of the movements and normal sounds of the heart render it necessary to adopt explanations of these murmurs at variance with the opinions commonly entertained. The reader can hardly fail to recognize in the portion of the work treating of the abnormal, or in that in which the normal sounds are considered, an effort of adaptation to the theories pertaining to the movements of the heart. This adaptation demands not only deviation from the opinions generally received, but a denial of certain pathological facts usually considered as established.

M. Beau attributes the production of intra-cardiac, or, as they are commonly called, bellows murmurs, to an exaggerated friction arising from a want of proportion between the volume of the current of blood and the size of the cardiac passages. This want of proportion involves positive or relative contraction of one or more of the orifices.

A bellows murmur, as every practical auscultator is aware, is associated in the vast proportion of instances with the first sound of the heart. This sound, according to the doctrine of the diastolic impulse, is caused by the auricular contraction. To be consistent, therefore, with this doctrine, it is necessary to assume that the murmur is caused by the passage of blood in its natural course from the auricle to the ventricle. Of the several orifices, the left auriculo-ventricular is oftenest the seat of lesions. Now, assuming that the blood passes from the auricle, after the apex impulse during the ventricular diastole, according to the doctrine generally believed, a murmur generated by the current in this direction, it is evident, will in point of time be associated with the second and not the first sound. Hence it follows that, according to this doctrine, the murmur incident to disease of the mitral orifice, and accompanying the first sound, must be due to regurgitation. But it does not suit M. Beau's theories of the movements and normal sounds to attribute the murmur, under these circumstances, to regurgitation. This explanation is,

in fact, incompatible with the doctrine of diastolic impulse. How does M. Beau overcome this difficulty? By asserting that regurgitation takes place only exceptionally, *i. e.*, in a very small proportion of cases. He says:—

“I certainly do not deny, absolutely, that a reflux of blood into the auricle may take place, and a murmur be caused by this reflux; but I think that this occurs only in some exceptional cases. In fact, it is hardly conceivable that the blood should be forced by the ventricular contraction into the auricle, when it finds an easy egress by the arterial orifice; for this reason I think that the reflux into the auricle occurs only in cases in which contraction of the arterial orifice complicates insufficiency of the auriculo-ventricular valves, obstructing the passage of the blood from the ventricle into the artery.” (P. 300.)

These assumed pathological facts are so extraordinary that the author was bound to adduce data for their support, aside from the consideration that they are necessary to sustain his physiological theories. We have a right to demand evidence gathered in the dead-room for statements directly opposed to the opinions of other observers. In the absence of this evidence, the author cannot complain that the reader accounts for the statements on the principle of adaptation to which we have alluded; in other words, the author believes the statements to be facts, because otherwise his theories of the normal sounds and movements of the heart will be invalidated.

A murmur accompanying, not following, the first sound, M. Beau is obliged to refer always to the auriculo-ventricular orifice. Conformity to his physiological theories requires this. If produced by the ventricular systole, at the arterial orifices, they must occur after the first sound and impulse. This he asserts to be the case. But this assertion is certainly disproved by clinical experience.

Again, a murmur associated with the second sound, according to clinical observation, is sometimes, although rarely, due to the current of blood from the auricle to the ventricle. This, of course, M. Beau cannot admit, inasmuch as the theory of diastolic impulse involves the passage of blood in that direction synchronously with the first sound. He denies, therefore, that a bellows murmur with the second sound ever originates at the auriculo-ventricular orifice, and asserts that it always depends on regurgitation from the aorta.

It is well known that, in determining the seat of intra-cardiac murmurs, considerable importance is attached by auscultators to the situation where they are heard with a maximum of intensity, and the direction in which they are furthest propagated. If any rules in physical exploration are well established, it is that these two points are entitled to confidence as a guide in the localization of valvular lesions. We can testify that, in a clinical experience considerably extended, we have found them reliable. But M. Beau cannot, of course, admit that an arterial murmur with the first sound is heard loudest over the arterial valves, and transmitted upward by the vessels, while it is perhaps quickly lost as the stethoscope is carried over the body of the heart toward the apex. He cannot admit this fact, demonstrable as it is at the bedside, because it is incompatible with the theory of diastolic impulse. According to this theory, the blood is not propelled into the arteries by the movement which causes the first sound. Hence, as just stated, he denies that a murmur produced at the arterial orifices ever accompanies the first sound.

The length to which this review is already extended precludes notice of the section devoted to the individual affections of the heart. The points, however, embraced in this section, inviting criticism, mainly relate to the application of the theoretical views to which we have referred in the foregoing remarks. For

the same reason, we must forego any critical notice of the concluding portion of the work, which treats of auscultation as applied to the bloodvessels. An analysis of the latter would develop peculiar doctrines not less than the portions which we have passed in review, but they have neither the same interest nor importance.

As before stated, the object of this work is to reproduce and bring together opinions of the author heretofore submitted in numerous papers distributed in different medical periodicals. And it is a volume truly remarkable for a collection of opinions which, for the most part, although long before the profession, and advocated by the author with great earnestness and ability, have been adopted by others only to a very limited extent.

Judged by the character of the work, the author's mental constitution is marked by certain peculiarities, which are often enough observed, but rarely in connection with so much industry and real ability. A pruriency for originating novel views appears to be the leading characteristic. Having formed a new theory, it is irrevocable, so far as his own belief is concerned. Facts which are incongruous, however stubborn, are less obstinate than his faith, and only serve to task his ingenuity in endeavouring to effect a compromise; hence he finds it easier to modify or reject the former, than to alter or abandon the latter. A clinical observer, he sees exclusively through the medium of the preconceived notions which he has originated. The work is both interesting and valuable in a psychological point of view, exemplifying that talent, zeal, and honesty are not sufficient for the investigation of truth, and that, without the well-balanced mind which belongs to the true philosopher, these mental qualities may serve to retard instead of promoting the advancement of science.

A. F.

## BIBLIOGRAPHICAL NOTICES.

ART. XX.—*The History, Diagnosis, and Treatment of the Fevers of the United States.* By ELISHA BARTLETT, M. D. Fourth edition, revised, by A. CLARK, M. D. 8vo. pp. 610. Philadelphia: Blanchard & Lea. 1856.

FEW physicians have fallen in the prime of life leaving behind them a more conspicuous evidence of their merit than Elisha Bartlett. His singular rectitude of mind and purpose, as well as his clear comprehension of the subject he undertook to expound, are prominent in every page of this work, which must in all time remain a monument to his honour. Fortunately he bequeathed to his friend, the present editor, the duty of preparing a new edition for the press; a labour of love which has been lovingly performed, and in a scientific spirit altogether in harmony with that of the author himself.

We may take for granted that our readers are acquainted with the former editions, and shall therefore only inform them of what new matter has been added; for of alterations in the original text, few could be needed when the work had already been so often subjected to the severely critical revision of its author. The additions made by Dr. Clark are numerous, but are all such as the progress of knowledge has rendered necessary. They are therefore mainly limited to the natural growth of the several branches of the subject, with occasional notices in the bibliographical department which compare favourably with the brief but comprehensive and pungent criticisms of the author himself.

In speaking of the relation of *age* to typhoid fever, Bartlett had omitted to notice the reason why it so generally occurs in persons under the fortieth year of life, viz., that a first attack usually prevents a subsequent one. Dr. Clark refers to the case of the town of Richmond, Mass., where an epidemic in 1840, and subsequent years, attacked the old as well as the young. The reason of this peculiarity was, that the locality in question had never before been visited by the disease. A similar occurrence has been observed in reference to other diseases which are usually confined to young persons. Thus measles, as is well known, seldom attacks adults. In circumstances like the above it affects all ages alike. In the Feroe Islands this affection had not appeared for sixty-five years; but at the end of that period it was introduced from Copenhagen, and 6,000 persons, out of a population of 7,782, were attacked, both old and young.

In the chapter relating to the theory of typhoid fever, the editor deals very tenderly with the speculations of Virchow, Parkes, and Jenner, saying that "we may properly wait for additional facts to confirm these doctrines." It is evident, we think, that in his opinion we shall have to wait a long time. For what, after all, is that disease which resolves itself into "an alteration of the nervous system?" Surely, these are words without knowledge.

In the treatment of typhoid fever the author notices the importance attached by Huss, of Stockholm, to the application of wet compresses to the abdomen. No doubt they form a clean and pleasant kind of poultice. In regard to the use of quinine in this disease, which was introduced into practice by the absurd doctrine of Dundas, of Liverpool, that intermittent, remittent, and continued fever, are mere varieties of the same disease, Dr. Peacock concludes, after a full examination of the subject, that it does no good, but often harm. This is precisely the inference we have drawn from what has fallen under our own observation. Where it seemed to act at all, it produced great cerebral disturbance and distress; in other cases its influence appeared to be perfectly negative.

Speaking of the contagiousness of typhus, Dr. Clark states, as the result of

observation amongst the physicians of his own acquaintance in New York, who had care of emigrants affected with this disease, that about fifty took the fever, and nearly one-third of that number died. He also confirms the statement of Dr. Stokes in regard to the frequent predominance of cerebral and nervous symptoms among persons of the educated classes who are attacked.

The editor describes very faithfully the condition of the encephalon in this disease, and calls attention to the flattened aspect of the convolutions as indicative of the pressure exerted upon them by the serous effusion, or by engorged vessels when the effusion is small in quantity. He is disposed to think that there is something more to account for the cerebral symptoms than merely congestion and passive effusion. In support of this opinion, he calls attention to the opalescent state of the arachnoid in many cases, and to certain whitish and sometimes elevated grains which, he intimates, denote a more active process than the term congestion implies. We should think not more than active as distinguished from passive congestion would explain; and that the former is present, and not the latter, is attested by all the cerebral phenomena of the disease. That this congestion never merges into inflammation, so as to leave the usual traces of the latter process, is, we presume, attributable to the slight tendency which the blood has to form plastic exudations in typhus, on account of its deficiency in fibrin, and not improbably, also, to its impaired vitality.

The lesion of the glands of Peyer, which is characteristic of typhoid fever, is stated by Dr. Clark to be met with in "a few instances" of typhus, along with a corresponding enlargement of the mesenteric glands. "In none of these cases," he remarks, "in which ulcers were found after death, did the symptoms lead the physician to suspect their existence during life." We should be better satisfied of the value of this statement if it were made as the evidence of the editor himself. Even then, it must be remembered, that if patients are not seen until an advanced stage, the diagnosis is difficult, if not impossible, in certain cases. Besides all which, the disease of Irish emigrants is not exclusively typhus. During certain seasons, cases of typhoid fever are not rare among them.

The bronchial complication of typhus has of late years acquired a special interest from the statements of Rokitsky, who describes a form of "typhus" in which the bronchia and their glands form the chief seat of the disease. But it is to be observed that this pathologist considers "broncho-typhus" as only another form of typhoid fever, which he, in common with German writers, entitles *typhus*. It is true that he asserts this form of disease to be "beyond all doubt the basis of the spotted contagious typhus, and very probably also of the Irish and North American typhus," but no proof is presented of its really being so. Dr. Stokes, in the passage quoted by Dr. Clark (p. 188), offers none, and proves nothing about the bronchial complications of typhus, except that they are no more inflammatory than the other hyperæmiæ which occur in this disease, and the editor himself admits (p. 222), that in the examinations of the subjects of ship fever made at New York, although enlargement, and even softening of the bronchial glands, is frequently met with, nothing resembling the typhus matter has been found in them.

The editor sustains the opinion of Dr. Stokes, that typhus fever tends to the development of pulmonary tubercles. It appears, however, to be a less influential cause of this degeneration than typhoid fever. In like manner phlebitis, muscular softening, mental imbecility, inflammation of the parotid gland, followed by its suppuration, cold abscesses, and erysipelas of the head and face, are mentioned as occasional secondary consequences of the disease. It is stated that the cold abscesses always demand the use of the lancet. We have met with a case in which a very large one upon the hip was cured without puncture by means of tincture of iodine freely applied to it, and the administration of nutritious food and tonic medicines.

Dr. Clark adds some new illustrations of the contagious nature of typhus fever. Among others, he furnishes proofs that the dissemination of the patients does not appear to lessen the risk of contagion, and he mentions, in addition to the statement given above, that of the thirty-six resident physicians attached to the Bellevue Hospital from 1847 to 1852, all but nine had the fever.

At the same institution relapses were not uncommon; but the second attack, although as well marked as the first, was never of as long duration as this latter. Additional proof is also furnished by the editor that typhus may occur twice or oftener in the same person.

In reference to the mutual relations of typhus and typhoid fever, the editor quotes several recent authorities on either side of the question as to their identity or diversity. It is at once apparent that those writers who have made a special study of the subject, in a field presenting both forms of disease, subscribe to the doctrine of their being essentially different affections. Such are Drs. Austin Flint, Wilks, and Peacock; while those who have not so examined it, as Dr. Barlow, or who seldom have to study both types of disease, as Dr. Stokes, hold to the doctrine of their identity. The late work of Dr. Huss, from which the editor quotes, tended somewhat to unsettle the belief of the former class, for this eminent writer is disposed to regard the two affections as merely varieties of one disease. On the other hand, we find that a Danish physician, Dr. Magnus, who subscribed to this doctrine in 1847, is now disposed to renounce it, for he tells us "that now certainly many, perhaps the majority are no longer inclined to look upon typhus and typhoid fever as one form of disease." (*Brit. and For. Med.-Chir. Rev.*, Oct. 1856, p. 327.)

Still more recently we have the testimony of French physicians who became acquainted with typhus fever in the Crimean campaign. Thus Dr. Mouchet, an army surgeon (*Médecin Major*), concludes a very interesting parallel of the two diseases in question in these words: "At every step of the analysis proofs have appeared of the diversity of these two affections. Their causes, course, duration, and lesions are so different as to separate them by an impassable barrier, and I am forced to conclude that typhus and typhoid fever are not identical affections." (*Abeille Méd.*, September, 1856, p. 252.)

In like manner at the Parisian military hospital of *Val de Grace*, a fever was observed which had broken out among the soldiers returning from the Russian war. In all, 108 of these patients were treated at the hospital referred to. M. Godelier, who has furnished an account of the epidemic, found that it presented all the characters of the "typhus" described by Hildenbrandt and of the "typhus fever" of British writers, and concludes in these terms: "Typhus and typhus fever are identical diseases, and they differ specifically from typhoid fever." (*Bull. de Thérap.*, LI. 95.)

An explanation of the peculiar bronze or olive colour of the liver in *remittent fever*, according to the observations of Dr. Clark, has been published elsewhere, but is appropriately inserted in the pathological history of the disease contained in this work. He believes the colouring matter to be *sui generis*, and he names it *hæmatoïdin*, because it appears to be formed directly from the blood, and to be deposited as the result of the repeated congestions to which the liver is subject in remittent fever. Its substantial existence he has demonstrated by microscopical observation. He has also shown that it is so slowly removed from the liver in some cases, that a year or more after perfect recovery from remittent fever, it may still be detected in that organ.

In the article on Yellow Fever, numerous important additions have been made by the editor, drawn chiefly from Dr. Blair's history of the fourth epidemic in British Guiana, and from Dr. La Roche's great work. Dr. Clark indulges in a noble encomium on this treatise, of which he says "the spirit and potencies of all the nine hundred and eighty-five treatises of the author's bibliography seemed to have been distilled over and condensed in this capacious alembic." And he rebukes the flippant discourtesy of a writer in the *British and Foreign Medico-Chirurgical Review*, who shuts his eyes to the greatness of the work, because, after a life-long study of whatever has been written on the disease, Dr. La Roche concludes that it is not contagious! But, as Dr. Clark very justly implies in his remarks (p. 534), admitting this conclusion to be established, it does not follow that quarantines against yellow fever should be abolished. Ships may be, and we believe that they sometimes are, foci of *infection*; they may carry in them the cause which is competent to develop the disease under favourable atmospheric conditions, although not a single person

on board of them may have had yellow fever during the voyage from one port to another. Hence we fully concur with the editor in advocating the maintenance of a strict quarantine of *vessels* and *goods* from ports where yellow fever prevails, and quite as fully in his belief that, after proper purification, the passengers by these same vessels may be allowed to pass quarantine limits.

The review just referred to is marked by a very disingenuous spirit, and we shall perhaps be pardoned for citing a few instances in proof of the charge.

The reviewer prints, with all the usual marks of extracts, a number of passages, which, on examination, prove to be not transcripts, but only paraphrases of Dr. La Roche's words. Thus, on p. 288, we have what appears to be a quotation of seven lines, and which is made up of *dissecta membra*, from sentences scattered over two pages (67 and 68) of the original work. On the same page of the review is another passage purporting to be a quotation, and comprising nearly eleven lines. Of these the first six are made up in the manner just described; the capital point, an unusually high temperature ( $88^{\circ}$  to  $96^{\circ}$ ), is not definitely mentioned; and the remaining five lines are not only not in the book, but flatly contradict what is there stated! Again, on the same page of the review, the writer says: "In 1794 the disease was introduced by a vessel from St. Mark;" the author says: "Like the fever of the preceding year, that of 1794 was ascribed by many to importation from abroad." According to the reviewer, "in 1797 the fever was *more* general, but less fatal, than in 1793." According to Dr. La Roche, it "was *less* extensive and fatal, doubtless, than that of 1793."

On p. 293 of the review, the writer refers to Dr. La Roche's chapter on the influence of "altitudinal and longitudinal ranges" on the production of the disease, and courteously remarks that "it would be well if he and other writers of the same class would abstain from writing in ambiguous terms on questions which they *do not* and *cannot* comprehend." Then, by way, we presume, of showing that his veracity is equal to his good breeding, he proceeds to furnish what seems to be a connected extract from the work; but one-half of it is to be found at p. 118, of the first volume, and the other half at p. 90, of volume the second! And as if this juggling trick, which appears to be a part of the writer's system of detraction, were not dishonest enough, he transforms the author's phrase "For the same reason, *in part, though not exclusively*, its *geographical* limits," &c., into "for the same reason, *in fact*, its limits," &c.

Many instances similar to the foregoing might be quoted, but in this incidental allusion to the subject we can find room for only one or two more. Our readers will remember the discussion in regard to the origin of an epidemic of yellow fever at Boa Vista, in 1845-6, its source in local causes being maintained on the one hand, and its importation by the Eclair being defended on the other. Dr. La Roche advocates its domestic origin; the reviewer believes, with Dr. McWilliam, that it was imported, and charges Dr. La Roche with resorting "to the discreditable alternative of affecting to doubt the facts, though they were substantiated by the whole surviving population of the island, *by Dr. King, who afterwards went over the same ground*," &c. Now Dr. King, in his account of "The Fever of Boa Vista," says (p. 6) he believed that the disease was "not a contagious fever, but was strictly of local origin;" he further accuses Dr. McWilliam, on whose evidence the hypothesis of its importation rests, of disingenuousness and misrepresentation; is "persuaded that the yellow fever has never been communicated to any one by a specific contagion from the bodies of those labouring under the disease" (p. 8), and, indeed, his whole book is written avowedly for the very purpose of refuting the allegations which the reviewer says were substantiated by his testimony!

The remarks of the reviewer respecting Dr. La Roche's discussion of the question of the contagious nature of yellow fever, are even more discreditable to his candour than any which have been here alluded to. He says (p. 295), "In a chapter on the contagious nature of the disease, a few of the more remarkable facts in support of the doctrine are briefly noticed, and the opinions of the more notorious writers of the Pym school are faintly traced, but in a way which might lead to the conviction that, after all, Dr. La Roche has no settled opinion on the question of contagion. In one place he brings forward

the most unexceptionable proofs of the communicability of the fever, and, as it were, challenges the reader to deny them; in another he ridicules his credulity, and charges the whole fraternity of contagionists with want of candour and truth." After this, it is plainer than ever that the reviewer is incapable of comprehending a judicial investigation of facts for the purpose of eliciting truth. It is clear that he, at least, would have proceeded very differently from Dr. La Roche, and, ignoring all that could be said on the side which he opposes, would have made the most of the evidence which favours a belief in the contagiousness of yellow fever. But Dr. La Roche, as an honest critic, and a philosopher, chose that both sides of the question should be heard, and accordingly he examines it in all its aspects, not "in a chapter," but in *eighteen chapters*, of which *the first two* are devoted to a statement of all that could be adduced on the affirmative side of the question.

The reviewer, in order to justify the above charge of frivolous inconsistency which he brings against Dr. La Roche, professes to convict him out of his own mouth, of being a contagionist, and cites the following, among other passages, for the purpose: "The communication of the disease from the sick to the well, may, in general, be traced in a satisfactory manner." This sentence occurs in a chapter which begins with these words: "The contagious character of yellow fever . . . and its transmissibility from one place to another, *have been, and continue to be supported* on the following grounds," (vol. ii., ch. xi.) These grounds are stated and discussed in numerical order, and the eighth one is the sentence quoted by the reviewer. But it is the argument of Dr. La Roche's opponents, and not his own, and in due course (ch. xxvi.) he examines and endeavours to refute it. Other contagionist assertions are attributed to Dr. La Roche, and upon precisely similar grounds. Controversialists must henceforth be careful not to state correctly their opponents' arguments, lest they should be charged with admitting them to be true. The reviewer of Dr. La Roche is evidently resolved that no such charge shall attach to him.

But we must return from this unwelcome digression.

The brief and very imperfect summary which has been given of the new matter in the present edition of Bartlett's treatise, will furnish the reader with some idea of its increased value over the previous issues of the work. The profession will, we are satisfied, ratify our judgment that it is the most complete work in any language on the subjects which it undertakes to discuss. The editor has done full justice to the author by the new matter inserted in the text, and, as already intimated, has executed in a kindred spirit the additional bibliographical notices which are appended to each article, and which are so valuable an assistance to all medical scholars who seek to form opinions of their own.

A. S.

ART. XXI.—1. *Transactions of the Medical Society of the State of Pennsylvania, at its Annual Session, held in the City of Philadelphia, May, 1856.* 8vo. pp. 228.

2. *The Transactions of the New Hampshire Medical Society, Sixty-sixth Anniversary, held at Concord, June, 1856.* 8vo. pp. 78.

3. *Transactions of the Seventh Annual Meeting of the Medical Society of the State of North Carolina, held at Raleigh, May, 1856.* 8vo. pp. 63.

4. *Transactions of the Illinois State Medical Society, for the year 1856.* 8vo. pp. 92.

In examining the *Transactions* of our several State Medical Societies, we find a very common complaint made, as an excuse for the paucity of details in the reports presented from the various local bodies of which these societies are composed, of the absence of any epidemic or unusual diseases, and the restriction of the reporters' observations during the year preceding to cases of ordinary affections. This complaint is founded, in our opinion, on an erroneous supposition, that the interest and value of the facts collected and recorded by medical

men consist solely in their bearing upon the etiology, pathology, and therapeutics of diseases, or forms of diseases, which are only of occasional or rare occurrence, or which have not yet gained admittance into our regular systematic treatises. It is important, of course, to record with accuracy the history of every epidemic, with every preceding and concurrent circumstance that may have the slightest tendency to throw light upon its causes, character, prevention, and cure; it is essential, also, that every new form and phase of disease which may be met with should be noted with minuteness and care, and not less so that the results of the use of new remedial agents already in use, should be promptly, candidly, and accurately reported; but not to the exclusion of observations on those forms of disease which the practitioner, in any given locality, or in every locality, is called upon throughout the year, or during its several seasons, daily to encounter. Everything that relates to these is of importance to him. Their characteristics, course, and termination, as they present themselves in different sections of country during the several seasons of the year, and under the varied meteorological conditions of the same season. The modifications produced in them by the age, sex, habits, occupations, and social position of the individuals attacked, and the treatment that experience has shown to be the best adapted to arrest their course, or to conduct them to a favourable termination. Every observation bearing directly or indirectly upon these questions is of value, whether it confirms, or controverts, or modifies, commonly received opinions or practice; and, in the careful collection and recording of such observation, every practitioner, wherever located, and however limited his field of practice, may aid in the progress and establishment of medical truth—whether doctrinal or practical.

1. The annual address before the *Pennsylvania State Medical Society*, delivered at the opening of its session of 1856, by its President, Dr. James S. Carpenter, of Pottsville, Schuylkill Co., is one replete with good sense, and well adapted to the occasion.

The first report comprised in these *Transactions* is that from the county of Berks. It is mainly confined to a report, most valuable and instructive, of the Valley of Oley, in the eastern portion of the county. A beautiful and very fertile spot, well watered and timbered, comprising an area of about thirty square miles, and nearly surrounded by hills which shut out from it the rest of the world. Its population is about three thousand. The valley is underlaid throughout by limestone. The inhabitants are chiefly engaged in agriculture, and are surrounded by all the substantial comforts of life—industrious and temperate. They are the descendants of Huguenots from France, Quakers or Friends from England, and of Swiss and Germans, most of whom left their native lands on account of religious persecution, and came to settle in the wilderness, "where they might find an asylum and breathe a more genial atmosphere of religious liberty."

A curious and interesting question presents itself: What are the prevalent diseases amid this secluded population of the valley of Oley? In the report before us, we have the answer.

"Healthy," it says, "as it should be expected the descendants of such hale pioneers would be, and free as they are from many infirmities, such as gout, which is not known amongst us, and cancer, which is but of rare occurrence, it must be yet admitted that such a formidable disease as phthisis pulmonalis has, in truth, exterminated quite a number of the venerable names of these hearty forefathers. Why this is, it is not pretended to explain; yet we know that rheumatic affections reign here extensively, and if Dr. Thompson's reasonings are correct in this respect, some light is shed upon their cause.

"Intermittent and remittent fevers have for some years been of rare occurrence; the former is now only occasionally met with along the borders of the Manatawny, and not at all on situations more elevated. Remittent seems to have been, for the last thirteen years, almost entirely superseded by typhoid fever. It is this which gives physicians most care, and strikes terror among the people. In its career, it pays no respect to situation, condition, or rank, and attacks alike the rich and poor, whether living among the Alpine regions,

or in the lowly valley. It entails sorrow and distress without the least perceptible regard as to season. The angel of death finds in it a weapon equally potent in the midst of winter, when all is mantled with an Arctic cloak, as well as under the influence of a vernal sun. It has now prevailed in this place for thirteen years, with an occasional abatement, but no cessation; yet the cases for the last few years have diminished in number, and will, perhaps, for once disappear.

"Dysentery has not prevailed, except sporadically, since 1851. It visited the neighbourhood several times, at irregular intervals of thirty-five years, and, in every instance, pursued nearly the same course in its march. The argillaceous districts were especially infected, and all the hills on the plain exposed to the south. A farm-house, situated at the foot of one of these gravel hills, though on the limestone, was, during the preceding epidemic, almost deprived of its inmates by death from dysentery, while, during the latter, that family escaped entirely. During the former, the family were supplied with water from a spring which had its source in the adjacent hill. This was destroyed during the interval by mill improvements, and they were, in consequence, obliged to obtain their water from a deep well in the limestone strata."

This was not the only instance of the same kind, the report assures us, that presented itself.

Cholera morbus, influenza, and all the affections of the mucous membrane of the air-passages, are noticed as especially prevalent during the spring of 1856. In January of the former year, two cases of puerperal fever are noted as occurring. In one of these, the mother suckled her child as long as her strength would permit. It was attacked with erysipelas, and died; the mother recovered. In March, measles became epidemic, after an interval of ten years. It was peculiar in its attacking the grown-up individuals of a family, often allowing the younger members to escape. It continued to prevail until the middle of May. In the fall of the year, pertussis occurred pretty extensively. During the summer, five cases of anthrax are reported in one of the villages within the valley.

This very interesting report was drawn up by Dr. P. G. Bertolet.

The report from Blair County comprises a brief sketch of the hydrography, topography, and geology of the county, with a succinct account of the prevailing diseases of the year 1855. These were mainly smallpox—principally in a modified form—hooping-cough, and mumps—generally of a mild character—typhoid fever, intermittent fever; dysentery, sporadic, and mostly in children; and, in the latter part of the winter, pneumonia, of a more decidedly inflammatory character than that under which it had presented itself for some time previous, requiring free depletion, tartar emetic, and blisters.

In reference to typhoid fever, Dr. Landis, the author of the report before us, who had under his care thirteen cases, all of them occurring in the first half of the year 1855, remarks:—

"The treatment pursued was mild, and rather expectant, a mode of treatment which I have always found more successful in simple typhoid fever than any other. In common phrase, I never attempt to *cure* typhoid fever, but simply conduct the patient through the storm, and not control it. I am convinced this disease will run a definite course in spite of the best directed efforts to arrest it, and, when there are no serious complications present, the less active the interference the better the patient fares. There is, perhaps, no other disease in which meddlesome medication is so pernicious. When important organs are threatened or invaded, these complications must of course be met, and treated on general principles. I would make a single remark with regard to the dietetic treatment of this fever: that I usually allow, from the very outset, light, nutritious food, believing that the powers of digestion and assimilation are maintained with considerable vigour throughout the disease. In this way, that extreme prostration of the nervous stage may be prevented in a majority of cases, which most certainly follows that mode of treatment that is content with merely prescribing slops and empty gruel, permitting the patient to reach the second stage in a state of inanition, to withstand the shock that threatens

to overwhelm the vital powers, and requiring the most potent stimulants to sustain him."

An eczematous disease having resulted, in a large number of cases, from the insertion into the arms of the patients of spurious vaccine matter, obtained from a druggist in Philadelphia, Dr. McKee, of Hollidaysburg, remarks as follows, and we would impress these remarks strongly upon the minds of the practitioners of medicine in all rural districts:—

"Such spurious virus is circulating everywhere, more or less, and it will be the case just so long as country practitioners do not adopt a more independent line of action, by resorting to the original spontaneous vaccine virus. So long as drug stores in a city receive a good, round sum—call it extortion, or what you may—for their diseased scabs, what care they where it goes, or what dire effects accompany it? The responsibility rests not with them, but with the physician whose confidence they betray and abuse. It is high time that each individual in the profession should resolve not to be imposed upon any longer, but return to the original and authentic problem of Jenner, and work it out for himself."

This is a subject, we would add, of serious importance. That there is much spurious and inefficient vaccine matter in use throughout our State, we have become convinced by facts that cannot be controverted. The consequence is, that either a sore on the arm, having no characteristics of the genuine vaccine disease, is produced, surrounded, sometimes, with an extensive, unmanageable eruption, or giving rise to an erysipelatous condition of the limb; or, perhaps, a condition of the arm is produced, having a close resemblance to that from genuine and efficient vaccine infection, but insufficient to so impress the system as to afford it complete protection from variolous infection. The only means to remedy this evil is, a systematic concert on the part of the profession, to renew, at short intervals, their supply of vaccine matter from its original source, and to never make use of any which is not certified to them by competent and reliable authority to be genuine and efficient, and derived from healthy patients on whom the vaccination has pursued throughout a perfectly regular course.

In the report from Bradford County, Dr. Horton gives the history of an interesting case of tumour at the neck of the bladder. A gentleman, sixty-two years of age, of enfeebled constitution from frequent attacks of malarial fevers, very subject to nervous or sick headache, in easy circumstances, and temperate habits, had suffered, for upwards of a year, from occasional attacks of retention of urine; whilst travelling, June 21, 1855, he was seized with one of these attacks, attended with intense pain in the region of the neck of the bladder. Warm fomentations were applied, and, after an hour, the pain ceased, some urine was voided, and the patient was enabled to resume his journey. His urine continued to be passed with tolerable ease until the morning of August 11, when retention and pain again recurred. Fomentations afforded no relief; an effort to introduce a catheter was unsuccessful. The next day, there being a strong pulse and considerable irritative fever, he was bled to a quart, from the arm. Distinct tumour above the pubes. Every attempt to pass the catheter proved ineffectual. Anodyne and relaxing enemata were administered, without effect. The patient continued to suffer excruciating pains, and finally sunk into a comatose condition, from which he was readily roused; on the morning of the 13th, his sufferings were terminated by death.

The following is the account of the *post-mortem* examination, twenty-eight hours after death:—

"The bladder contained about a quart of apparently healthy urine; whole lining membrane inflamed; larger bloodvessels engorged so as readily to trace their course; neck of the bladder enveloped by a tumour three inches in diameter, involving the prostate, closing the passage into the urethra, and pushing up into the bladder with several teat-like prominences. The tumour had an elastic feel, and, when cut into, was found to contain numerous small bodies, from a quarter to a half inch in diameter, which resembled tubercles. The most of them were in a state of disintegration. Some were already a yellowish, cheesy mass; others contained a yellowish, pus-like matter within, the circumference being sound and entire, or nearly so. No small granulations were observed.

Cowper's glands were enlarged, and found to contain a yellowish matter. The abdominal viscera generally appeared in a healthy condition. The examination, however, was confined mostly to the neck of the bladder, and parts near it. The testis of the right side was wanting; a small fibrous mass occupied the scrotum in its place. It is not known how long this had been so. The tumour was somewhat elongated, or rather of a pear form, with the large end upwards, and, judging from descriptions I have read, was not an ordinary case of enlarged prostate."

The following case of poisoning from eating the charged ends of friction matches is not without interest. It is related by Dr. Horton:—

"On the 31st of March, 1856, at 9½ o'clock A. M., I visited M. T., a sprightly intelligent little girl, aged 3 years. Found her very drowsy; extremities quite cold; considerable heat over the stomach and bowels; pulse weak, rather slow; bluish semicircle under each eye; pale around the mouth; breathing easy, with now and then a deep sigh. The child was at meeting the day before, seemed in excellent health, and uncommonly playful. After going home from meeting, while the family were at supper, she went into the bedroom, got up to the match-safe, took out the matches, and was shortly afterwards found playing with them. 'Why, M.,' says an older sister to her, 'have you been eating the matches?' 'Yes,' answered the little girl, playfully, 'they are little snakes, and I have bit all their heads off.' The family thought no more of it, and went to bed as usual. In a short time afterwards, the little girl began to vomit, and continued to do so, at intervals, all night. Her breath smelt strongly of the matches; but still her parents did not become alarmed, thinking the matches were not poisonous, and believing that the vomiting was caused by worms, with which they supposed she had been troubled for some days past. In the morning, about daylight, she passed a large lumbricoid, and this still strengthened their belief that it was worms. I directed warm water to the hands and feet, flannels wet in salt-water over the stomach and bowels, and internally a few grains of calomel, to be followed by olive oil. I left her at 10 o'clock, requesting word to be sent me by 2 o'clock P. M., if she continued to sleep. I heard nothing of the child until the next morning, when the news came that she was dead. Her parents thought she was doing well, though she was very sleepy all the afternoon. She had a small discharge from the bowels between 3 and 4 o'clock; nothing unusual in its appearance; was cheerful, talked plainly and rationally when awake, and said that she was not sick. She continued to vomit occasionally, and had a very strong desire for cold water all the time. Her mother went to bed with her as usual. At half-past ten she seemed bright and smart, kissed her mother repeatedly, and said she felt easy. A little before twelve she was a corpse. She gently slept her life away—no groan, no struggle. I saw the corpse nine hours after death; abdominal distension large, with purple spots; face natural, no bloating.

"The matches were the common Lucifers, such as are put up in small paper cases or boxes, with the dark-blue composition upon the end of them."

Dr. Allen relates a case of entropium cured by the application of collodion, in a female 60 years of age.

"I applied the collodion," he remarks, "upon the eyelid and brow, and was pleased to see it contract sufficiently to draw the cilia from off the eye. A daily application was made for three weeks, by which time she was so far recovered that she could open, shut, and retain the eye at pleasure. The evaporation of the collodion produced a very agreeable sensation of coolness, and, by reducing the inflammation, enabled her again to see with the eye, that had been blind for many years. Six months after this time I saw her, and found that she was steadily improving."

Dr. Allen believes that the application of the collodion will be found sufficient for the cure of most recent cases of entropium, as well as of those chronic cases where the eyelid is not very firm.

Dr. Allen presents the history of three cases of smallpox which occurred in Smithfield, Bradford County, in August, 1852. The first of these cases, and to which the others were traceable, occurred in a little girl, two years and a half old. For several years, the disease had not occurred within many miles of the

vicinity, and the child had not been abroad for several months, nor could any exposure of her to friends or strangers visiting the family be traced in any possible way. It was evidently of spontaneous origin.

The report of the Chester County Medical Society, in common with all the other reports in the volume before us, bears testimony to the unusual healthfulness of the year 1855. No epidemic of moment occurred, and even the ordinary endemic and sporadic diseases appear to have been few in number and mild in character. And such would seem to have been the case also throughout every portion of the State.

From the Report from Huntingdon County we quote the following remarks by Dr. J. M. Gemmill:—

“The most remarkable feature of the diseases of the period alluded to”—autumn of 1855—“was the *blending of the types of remittent and typhoid fevers*. In some cases, the disease, in the commencement, assumed the regular remittent form; the only thing unusual about them being a more frequent pulse during the remission than in simple cases. The ordinary treatment would, in a few days, arrest the periodic exacerbations; but when you were confidently expecting a speedy convalescence, you were disappointed to find the case gliding into one of well-marked typhoid fever, to be protracted perhaps for weeks, and marked by hemorrhage from the bowels, and all the most troublesome symptoms of this lingering disease.

“In other cases, the disease assumed the regular typhoid form in the commencement, and, under the usual treatment for two or three weeks, would change into the intermittent variety, and be speedily cured by a few doses of antiperiodic medicine. In another class of cases, the symptoms of the two varieties were so intimately blended, and the disease so intractable, that great care and close attention were necessary in their management. In these cases, we had great irritability of the bowels, and strongly marked gastric and hepatic derangement, with continued fever and regular exacerbations. They were successfully treated only by strict attention, and promptly meeting the symptoms as they presented themselves.

“Many cases of otherwise regular remittent fever were complicated with hemorrhage from the nose and bowels, and often to a most alarming extent. In fact, every form and variety of fever seemed liable at any moment to be complicated with the most profuse and exhausting hemorrhage; and, altogether, I have never seen so general a tendency to hemorrhages in fevers as during the period spoken of.”

In the very interesting report on the endemico-epidemic topography of Lawrence County, by Dr. Leasure, of Newcastle, in that county, we are presented with an instructive account of a malignant epidemic dysentery which prevailed in the county during the summer of 1851. The most successful treatment was found by the reporter to be large doses of opium, with ipecacuanha and calomel, every three or four hours, for one or two days, or until feces strongly tinged with bile were passed, and then followed by a tablespoonful of sulph. magnesiae in three tablespoonfuls of boiling water, swallowed as hot as the throat would tolerate, succeeded, in twenty or thirty minutes, by copious draughts of hot rice or barley water. On the return of painful dysenteric stools, the opium and ipecacuanha, without the calomel, to be resumed, followed by the sulph. magnesiae, as before. When, by this means, the bowels have been quickly and fully evacuated, further discharges to be restrained by opiates. In addition, absolute rest in the horizontal position was enjoined, and warm fomentations to abdomen, and occasionally stimulants to extremities. Diet, in the early stages, flour gruel and rice and gum-water; and, as stimulants began to be required, brandy and animal broths, or boiled milk.

“During the present season,” the reporter remarks, “we found, in common with our professional brethren all over the country, that intermittent diseases overleaped the ancient boundaries of their endemic habitation, and spread abroad all over the land, so that numerous cases occurred where the people had felt perfectly secure from ague; and now we have a general intermittent diathesis, as well as the typhoid, modifying all our diseases, of whatever character, where they are attended by any serious constitutional disturbance. Nothing is more

common than to find, in any given locality, a case of disease—as, for instance, pneumonia—that will take on an intermittent type in its early stage, and become typhoid, if it last a week or ten days without establishing a well-marked convalescence; and, during the present season, we have, in addition, a strong tendency to jaundice in our fevers, of whatever grade; and, since the first of April, we have had a more general predominance of fever and ague than has occurred for many years in the spring season, but the cases are nearly all those who suffered attacks of the same disease last fall.”

Lawrence County, we are informed, has long enjoyed an almost entire immunity from croup and scarlatina. There is there much less disease among children than formerly, and the mortality from tuberculosis has greatly diminished.

In Lebanon County, as we learn from its report for 1855, intermittent fever prevailed to a considerable extent during the year; a majority of its victims were the foreign labourers on the public works, though very obstinate cases were not unfrequently met with in acclimated residents. Typhoid fever was also a common disease during the year. Smallpox, measles, and scarlatina appear also to have prevailed to some extent. Inflammation of the lungs and pleura, parotitis, and pertussis prevailed to a considerable extent during the cold season; while acute rheumatism, neuralgia, and erysipelas are noticed as of more frequent occurrence than usual.

From the Sanitary Report of the Montgomery Medical Society we extract the following remarks by Dr. Francis B. Poley, on the treatment of acute inflammations, such as puerperal fever, peritonitis, pneumonia, meningitis, &c., chiefly by the free use of tincture of digitalis.

“Eight years’ experience,” he informs us, “has fully convinced me that digitalis is absolutely the specific for inflammatory affections. The cure is absolutely certain, if there be time to get the patient under the influence of the medicine before fatal disorganization has taken place, and this if necessary, can be generally accomplished in twenty-four hours from the time the first dose is taken, sometimes earlier; but occasionally it may require thirty-six or even forty-eight hours to check the inflammation decidedly. A complete cure is generally effected in from three to six days, according to the condition of the inflamed parts when the inflammation is arrested, and other circumstances which I have not time to explain at present.”

Dr. P. generally begins the treatment with a copious bleeding, less so, however, than if digitalis were not employed, and rarely has occasion to repeat it. In cases where the inflammation is not very active or extensive, bloodletting will not be necessary.

In order to give an idea of his plan of treatment he supposes a case. A woman of ordinary good health and strength is attacked with puerperal fever, or it may be the case is one of extensive inflammation occurring in a young robust patient. “In such a case,” says Dr. P., “I would bleed immediately, then I would give one fluidrachm of tincture of digitalis every four hours.” If it be a puerperal case, attended with severe after-pains, he gives at the same time two or three grains of opium, or a full dose of morphia every two or three hours until the pains cease. One dose is generally sufficient. If the fever and soreness very much subside, the dose of the digitalis to be diminished at least one-half, if they entirely disappear it is to be entirely discontinued. “It is very likely that four drachms of the tincture of digitalis will be sufficient to make a decided impression on the disease—there is less tenderness on pressure, the pulse is less frequent and perhaps somewhat irregular, a peculiar paleness about the mouth, perhaps nausea, and a number of other indications of approach of *digitalization*.” Dr. P. then gives from 15 to 30 drops of the tincture according to circumstances, every four hours, until the pain and fever have entirely subsided.

“If, however, after the fourth drachm of the tincture is given, the inflammation still continues unabated, I would continue the drachm doses until six or seven are taken, if necessary, and then diminish more or less rapidly according to circumstances. *Alarming and even dangerous prostration may follow the too frequent repetition, or the too long continuance of large doses.* After administering the lesser doses of digitalis, as above directed, until the pain or soreness

and fever have entirely subsided, which may require from twelve to twenty-four hours more, our patient, instead of having a pulse of 130 beats per minute, and a hot dry skin, has a soft, weak, slow, and generally intermittent pulse, perhaps 35, 40, or 50 beats per minute; occasionally, in pale and nervous persons, instead of a very slow pulse, it may be somewhat frequent, but very weak and peculiar; skin cool, pale, and moist; frequently profuse perspiration, no thirst, no pain on pressure, patient feels comfortable, and only complains of more or less weakness and occasional nausea."

"It may not be improper to state that numerous cases of inflammation occur in which a much milder course of treatment is all sufficient, in which bleeding is not required. From 20 to 30 drops of tincture of digitalis, given every four hours for 24 or 36 hours, and afterwards in lesser doses, as before mentioned, are all that is required to effect the cure, which is generally accomplished in two or three days in such cases. To graduate the dose of digitalis to the force of the disease, and the resistance of the system, are considerations of great importance, and require a nice discrimination."

While Dr. P. regards digitalis as *the chief* remedy in inflammations, with the occasional use of the lancet, he by no means rejects the use of other means that may be demanded by the symptoms and condition of the patient.

"I find," he remarks, "no occasion to use mercury in any form with a view to ptyalism, and very rarely indeed need there be any resort to blistering or cupping. I consider it proper to state, in connection with the foregoing, that I almost invariably use hydrocyanic acid in all inflammatory affections; it is soothing and tranquillizing, though transient in its effects. In acute diseases in adults, I generally give one minim every two hours, and if digitalis be given every four hours, it is taken with the hydrocyanic acid every other dose."

"As a general rule," according to Dr. P., "patients that bear bloodletting well, will require larger quantities of digitalis to produce the desired effect, and *vice versa*. In pale, nervous, and excitable persons, the prostration is apt to be more sudden and severe. In such cases, large doses should be repeated with the greatest caution possible. The extent and intensity of the inflammation also have a great controlling influence. In cases of very active and very extensive inflammation, large doses must be repeated in the beginning more frequently than where the inflammation is less active. In females that are nursing, and in pregnancy, it should be given cautiously, and never beyond what is required to produce its proper results."

"A child, one year old, with inflammation of the brain or lungs, may take two or three drops of the tincture, according to circumstances, every four hours, until four, five, or six doses are taken, then it may be proper to give only one or two drops per day."

Dr. P. adds the testimony of Drs. Bigony and Beaver in confirmation of his estimate of digitalis as the chief remedial agent in the treatment of inflammations.

We place the subject before our readers without any comment, having no experience of our own in respect to it to present. With a strong bias in favour of digitalis, as a therapeutic agent of great power that has been too much lost sight of of late years, we nevertheless, respectable and reliable as the source is from which the above testimony in its favour, as a specific in inflammatory diseases, comes, should hesitate in its employment with the freedom and boldness recommended by Dr. P. We have too often seen it when administered dose after dose, with apparently no effect, produce, suddenly, such an utter prostration of the powers of life, that the death of the patient seemed imminent, and his existence could only be preserved by a prompt and unrelenting use of the most active diffusible stimulants. It is this known peculiarity of the digitalis which renders its continuous employment to a sufficient extent to arrest the course of any considerable acute inflammation fraught with so much danger. We admit that there is comparatively less danger of the result alluded to, from full than from small doses. We have found, also, the infusion a more manageable form for its administration than the tincture.

The report from the Philadelphia County Medical Society is a very elaborate and most interesting one. It presents a very good general outline of the medical topography of the county, deficient it is true in some of its details, and in

some of its features subject probably to no little criticism on the part of the scientific geologist, but sufficiently full and accurate to throw important light upon the etiology of the more prominent diseases endemic to different sections of the county. On the subjects of water supply, drainage and sewerage, cess-pools, street cleaning, animal refuse, ventilation, the dwellings of the poor, intramural interments, and other matters connected with public and especially civic hygiene, the remarks of the reporter, Dr. Wilson Jewell, will be found replete with sound views and practical suggestions.

The subject of meteorology is treated very fully, for the year 1855, the period embraced in the report. Complete mortuary tables are given, introduced by a comparison of the mortality of Philadelphia with other cities in the Union. A brief survey of the prevalent diseases for the year closes the report. From the truly interesting and valuable matter contained in this portion of the report we had marked several items for especial notice; we are obliged, however, to pass them by. The entire report is deserving of a close examination on the part of the physicians residing within the bounds of the county as well as by those beyond them.

An excellent report from Schuylkill County, and a short, but not uninteresting one from Susquehanna County, complete the contents of the present volume of *Transactions*. A very valuable report on meteorology, for 1855, is appended to that from Schuylkill County. It is drawn up by Dr. A. Heger, of Pottsville. If, upon the same plan, and with similar care, observations are made and recorded for each successive year, in every section of the State, we shall be put in possession of data upon which may be based with a degree of confidence some general meteorological laws, and from which more reliable conclusions in reference to the influence which the meteorological conditions and changes in any given locality exert upon the health of the community, the occurrence of epidemics, and the character of the endemic diseases, than we have it now in our power to do.

2. The session of the *New Hampshire Medical Society*, for 1856, was opened by an address by its President, Dr. A. Smalley, on progressive medicine, its relations to society, to the other sciences and professions. This theme is discussed with no little acuteness and force. Dr. S. displays in rapid outline the steady progress which medicine has already made and is still making, towards the solution of the all-important problem—the determination of the best and most effectual means for repelling the onset of disease, or of arresting its progress when it has already become seated in the human organism. He points with great truth and eloquence to the deep interest which all classes and every individual in society has in the progress of the healing art, and in the upholding of those who are engaged in the promotion of that progress, with a brief glance at the relation of medicine to other sciences and professions as they stand in the eyes and estimation of the people and of legislators.

The first report is one on the results of the quantitative and qualitative analysis of homœopathic medical preparations, by Edward H. Parker, M. D., of New York City. Excepting to show the miserable system of deception upon which the pretensions of homœopathy are based, of which we had hoped that every intelligent physician was already sufficiently convinced, we can see but little good that can result from this report. Even could it be brought before the eyes of those of the community who have suffered themselves to be duped by the infinitesimal doses of potentized medicines, administered under the absurd pretence of *similia similibus curantur*, it would scarcely open their eyes to see their own folly and the deception practised upon them. The confident assertion, unhesitating promises and other charlatanic arts of the Hahnemannist will win for him the day with a certain class of the community, in defiance of every attempt on our part to enlighten their understandings, and convince their judgments.

There is some truth in the remarks with which the report concludes. Every means adapted to improve the form in which our remedies are given, so as to render them, while we retain their curative powers unimpaired, as agreeable and as little offensive as possible to the patient, is well worthy the considera-

tion of the medical practitioner. It was an observation of the late Dr. Dorsey to the class of *materia medica*: "It is almost as important to medicate our patients agreeably as to medicate them rightly. The thoughts of the inelegant and nauseous formulæ patronized by the profession has caused many a poor wretch to defer sending for his physician until disease has attained so powerful a hold upon his system as to render its entire removal difficult and uncertain."

The report which follows is on the ever fruitful subject of quackery. It is replete with sound opinions and manly sentiments, and one or two opportune scraps of advice to the members of the medical profession, which, if taken and acted upon, cannot fail to enhance the dignity and respectability of some, at least, of their number.

A report succeeds from the Committee on Practical Medicine, by Dr. H. H. Mason. It presents no prominent points of interest. It deals altogether in generalities; sound, it is true, and not without deep importance in reference to a correct and successful therapeutics. They can lay claim, however, to but little of originality, and though well expressed, are enforced by no illustrations with which the thinking and observant physician is not familiar.

The next report, that on indigenous botany and *materia medica*, deserting the legitimate boundaries of its proper province, is taken up entirely by a somewhat laboured recommendation of fluid extracts, as presenting in a pure and concentrated state the active properties of our vegetable remedies—in a form in which they can be readily kept with a lessened danger of deterioration, and administered to our patients with greater ease than in any other. These fluid extracts, when properly and skilfully prepared, present, among others, in the estimate made of them by Dr. Albert Smith, the author of the report, the following recommendations:—

"They are uniform in strength—there need be no experimenting with doses till we reach the desired effect—it may be accomplished at once.

"There is a certainty also about these extracts that is very satisfactory. Given in the doses directed, you will not fail to see the peculiar effects of each article in a very short time, without being obliged to resort to dangerous or heroic doses.

"They offer many advantages from their concentrated form; there is no necessity for large doses. It is certainly a great gain to see the same effects from five drops of the fluid extract as from a drachm of the tincture, or wine of colchicum; or from ten drops of the extract as from a drachm of the tincture of hyoseyamus."

"They enable the physician to make extemporaneously, syrups, infusions and tinctures, that are perfect in character, with a small amount of material."

The report which follows is on inflammation, by Dr. P. A. Stackpole. It is throughout marked by good sense rather than profundity; and though it presents no important addition to our knowledge of inflammation, it has the recommendation of being devoid of any of those startling hypotheses, adopted by many modern writers on the pathology of this and other diseases. Dr. Stackpole very properly repudiates the notion that inflammation is to be viewed in certain cases as a reparative process—"it is always to be considered as a disease, and never to be desired in the healing of any injuries."

3. The opening address of the seventh annual session (May, 1856) of the *Medical Society of North Carolina*, was delivered by Dr. Edward Warren. The theme of the speaker is "the medical profession"—the obligations which those assume who have entered its ranks—their duties to themselves, their colleagues, their patients, and the community at large. And well and wisely, and eloquently is the theme discussed, illustrated, and enforced.

Referring to the occurrence of yellow fever in Norfolk, Va., in 1855, Dr. Warren pictures the terror and consternation which the ravages of the disease spread throughout the community within "the plague stricken city." From whence, he remarks,

"The panic spread to the surrounding districts; strict quarantine regulations were enforced, and the weary outcasts were denied that shelter and protection which common humanity demanded for the unfortunate. The appeals of hos-

pitality, the teachings of religion, the pleadings of charity, and the voice of nature itself, were all unheeded, whilst selfishness issued its unholy fiat, and commanded universal obedience. Death, disease, and wretchedness impelled the fugitives from their homes; whilst the cold, unchristian, and unenlightened teachings of a false philosophy closed hearts and houses against them, and forced them back to their infected homes, to inhale the pestilential vapours, there to die amid scenes of misery. It was at this point that the medical profession entered the lists, and arrayed itself on the side of justice and humanity; it was then that its conservative influence was brought to bear in behalf of the outcast and the sufferer; it was then that its proudest triumph was won, and its noblest monument reared. Disabusing the public mind of the erroneous views it had imbibed in relation to the character and causes of the diseases, and repelling its prejudices in respect to its propagation by contagion from the bodies of the sick. Through its persuasions and teachings, all obnoxious restrictions were rescinded, all obstacles to free intercourse removed, all barriers to the natural flow of generous feelings broken down; hearts were unlocked, houses opened, asylums furnished; rich streams of kindness and charity gushed forth from every bosom, and Heaven smiled as it saw that the reign of selfishness was over, and that humanity had triumphed in the end. But this is only the first chapter in the history of those trying times."

"The demon of destruction was still abroad; the arrows of death were flying thick and fast about the city; the high and the low were falling everywhere; the pride of manhood was no shield against the violence of the malady; the spell of beauty was powerless over the scourge; love could find no asylum for the objects of its solicitude; and all was consternation and despair within the limits of the unfortunate place." "Chained to their posts by an imperious sense of duty and honour, the resident physicians of Norfolk shrank from no obligation imposed by their calling; avoided no responsibility appertaining to their legitimate business, and battled manfully on to the end—either to fall before the pestilence, or to emerge from its gloom with constitutions shattered, health ruined—wrecks of their former selves, and living monuments of their courageous devotion to their profession, and noble martyrdom in the cause of humanity. But the record does not stop here. There were others far removed from the scene of danger, upon whom the sad intelligence came as an electric shock, awakening all the sympathy of their nature, and inspiring them with the generous resolution of hastening to the scene of disaster, that they might lend their assistance towards resisting the fury of the pestilence. Without a prospect of gain, with no hope of reward, with the certainty of martyrdom before them, they left home, family, friends, and business, that they might contribute their sympathies, their prayers, their professional skill, and even their lives to the furtherance of the cause of humanity and the restraint of the terrible scourge. Death spared them not; but new recruits were constantly arriving to fill up the broken ranks of the profession. The malady defied their efforts, and marched on unchecked and unsatisfied, but they lost neither courage nor energy on that account; all was gloom and darkness around them for many long and dreary weeks, but they despaired not of a brighter and a happier day. In the public hospitals; in the mansions of the rich; in the habitations of the poor; with the proud and the humble; among all classes and conditions, wherever the pestilence penetrated, and death sought a victim, these noble volunteers were found ministering to the stricken, closing the eyes of the dying, wiping away the tears of sorrow, comforting helpless innocence, and fulfilling everywhere their highest destiny as men, and their noblest duties as physicians. The pen of history may record brave deeds upon the battle-field; the muse of poetry may lend her sweetest numbers to embalm the memory of those who have courted danger at the cannon's mouth, and met death in the fearful breach; the stately pillar and majestic arch may commemorate the triumph of the conqueror, and young ambition's pulses wildly leap as the story is recounted which tells of the hero's laurels, and the victor's crown, but peace has her victories no less renowned than war; and to those whose labour and glory it has been to defy the power of the pestilence, to tread the path of duty unmoved by the terrors which surround it, to carry medical aid to

the sick and suffering, to offer sympathy and consolation to the broken-hearted, to count all difficulty and danger as nothing when contrasted with the love for their fellow men, and their obligations to their profession—to them a monument is due, whose every stone shall be quarried from the love and gratitude of humanity—whose pinnacle shall kiss the clouds, and whose glory shall go down to the latest generations.”

The first report is by Dr. N. J. Pittman. It comprises the histories of two cases. The first of general paralysis from the local absorption of the sulphuret or sulphide of lead. It was in a gentleman, 42 years of age, who, in consequence of an ill-charactered ulceration of the cheek, had applied to it a powder recommended by a female quack for a length of time. It had no effect in curing the ulcer, but finally induced general paralysis. Upon inquiry, the powder was found to consist of a sulphide or sulphuret of lead. Under the effects induced by it the patient in a short time sank.

The second case is one of a double fracture of the thigh, cured with only five lines of shortening. It occurred in a lad twelve years of age, in consequence of a fall from a horse. The fracture was treated by the double inclined plane, McIntyre's splint, for the first day, but on the second, from the inconvenience produced by this mode of management, it was changed for Gibson's modification of Hagedorn's apparatus; under the use of which for about six weeks the fractures were found completely consolidated, with only the amount of shortening indicated, and within three months from the period of the accident the patient had the entire use of the limb, with no apparent evidence of deformity.

The volume closes with a paper on Remittent Fever, by Dr. Frederic Manson, giving “the condensed results of fifteen years' experience in its study and treatment.” The disease is described under the three forms of *mild remittent*, being that which the author has generally met with; *grave remittent*, a rare and exceptional form, chiefly witnessed during the year 1844, and in the great epidemic of 1846, and occasionally both before and since these periods; the *adynamic remittent*, a form of the disease which seems to form, as it were, the connecting link between periodical and continued fever, with which latter it is liable to be confounded.

The paper of Dr. Manson is an interesting one, and will amply repay a careful study. The chief object of the author in its presentation to the Society is to advocate the abortive treatment, by the administration of large doses of quinia, so soon as, in cases where the reaction runs high, the system is properly prepared for it. In the grave form he gives it in ten grain doses, with twenty grains of capsicum, in a pint of boiling water, as an enema, every half hour until symptoms of reaction ensue, and then in doses, by the mouth, of from five to ten grains every three or four hours, until thirty-five or forty grains are taken.

4. The *Transactions of the Illinois State Medical Society* open with a report on Practical Medicine, by Dr. Samuel Thompson. Periodic fevers, it informs us, appear to have been more extensively present throughout the State during the year 1855 than at any previous period. It is stated by Dr. Thompson that in six cases of intermittent fever the sulphate of cinchonæ was used by him in place of quinine, and to his perfect satisfaction.

“Indeed, we believe,” he says, “that when the object was to give something to prevent relapse, it seemed more efficient than the quinine itself. Our course though was generally to give quinine to arrest the chills, and then prescribe the cinchona and iron to invigorate the system, so as to prevent a return.

“During our constant attendance upon the cases of this kind which occurred during the last summer and autumn, it did not appear to us that they were precisely of the character of ordinary intermittent. In a large number of cases the functional impression was much graver than is usually manifested in those complaints in this region of country; in cases of even a plain uncomplicated tertian intermittent, the patient felt sick all the intervening days. There appeared to be a disposition, in a large number of cases, for the chills to anticipate their hour of return; while in some cases they became each day longer in their continuance. And, again, in other instances, the chill each day be-

came more indistinct, while the fever was more severe and protracted. In the first class of cases, if neglected, the tendency was to run into what is called congestive chill; while, under the second described symptoms, 'congestive fever,' as we would term it, or fever in which prostration and typhoid symptoms supervened, was apt to be the consequence. In quite a number of cases the whole paroxysm, chill, fever, and sweat were jumbled or blended together. In our experience, real rigors or shakes were rare during the past year. There were a number of cases in which the chief complaint was of the great oppression of breathing, of a load like a ton of iron on their stomachs, while a feeble pulse was an almost universal feature of the complaint. Again, the blending together, in some cases, of some of the symptoms of what is called milk sickness, with the more usual effects accompanying the fever, was an interesting circumstance."

Typhoid fever, or a disease bearing in its general symptoms affinity with the disease known under that name, appears, from the report before us, to be a prevalent malady in Illinois. Of its symptomatology, general course, and pathological anatomy, the report before us affords us no data from which any very definite or correct opinions can be drawn.

"The only disease," says Dr. Payne, "which has prevailed as an epidemic to any extent, within the last two years, is acute bronchitis. Many of the adult population, and particularly the males, were attacked with it; it did not prove serious in any of those cases, most of them being able to attend to their ordinary business; the greatest danger was its liability to terminate in pneumonia. It was, however, among children, of a more aggravated form, usually coming on with a chill, or chilly sensations, followed in a short time by high fever, tightness across the chest and down the sternum, great oppression referred to the epigastrium, severe paroxysmal fits of coughing, the mucus occasionally mixed with blood; there was a remission, in most cases, in the fever towards morning. The disease was of various grades, from the mildest to the most aggravated form; the duration of the disease was from ten days to two weeks. It made its appearance the latter part of March, continuing for five or six weeks before it declined. I had quite a number of cases under my charge, all of which recovered, and, so far as I am able to learn, but one, or at most two deaths, occurred among all the cases. The disease was principally confined to Marshall and its vicinity; but few cases occurred in the country. There was nothing very novel in the treatment; calomel was required in some cases where there was much bilious derangement, or the inflammatory action ran high. In those cases where there was a marked remission, quinine seemed to be of the greatest benefit, cutting short some few cases, and materially moderating the violence of others. There were several cases that I believe would have terminated fatally, had it not been for the use of this valuable agent. All of our physicians, so far as I have conversed, made use of it. Diaphoretics, expectorants, and a blister over the sternum were used." "In our own neighbourhood (Edwards and Wayne counties)," says Dr. Thompson, "there has been an almost universal prevalence of bronchial affections, especially during April and the beginning of May; constituting, in fact, a true influenza, in which the affection of the larynx was the most prominent and troublesome symptom; and we are informed the same state of things extended over the counties adjoining."

Variola appears to have prevailed extensively in different parts of the State. The report before us bears testimony to the preservative powers of vaccination.

The report presents some facts which would seem to favour the curative powers of the tincture of the muriate of iron, internally, and the application, externally, of the tincture of iodine in erysipelas, occurring in both adults and children; the tincture of iodine being diluted with alcoholic when applied to the skin in young subjects.

The report contains some remarks on milk sickness. Dr. Haller remarks that the disease occurs most frequently, and is much worse in dry seasons than wet. He considers it to be occasioned by partaking of the milk and flesh of animals who have partaken of a mineral poison. He treats it pretty much as he

would the painter's colic, and with much success. The author of the report objects to Dr. Haller's etiology, pathology, and therapeutics. He agrees with him, however, that it is more prevalent after dry than after wet seasons. In a former part of this report, the author queries whether milk sickness is anything else than one of the forms of periodic fever. A very full bibliography of the disease is given.

The remarks on the epidemic cholera, contained in the report, are loose and unsatisfactory.

The report closes with an analysis of the original department of the *N. W. Medical Journal* for the first quarter of the year 1856, and a communication from Dr. H. Nance, of Lafayette, Stark County, referred to in the body of the report.

The next report is on Orthopædic Surgery, by Dr. David Prince. It is occupied with a few leading arguments in favour of the division of muscles, tendons, aponeuroses, and ligaments for the removal of deformities resulting from perverted muscular action, excepting in recent and exceptional cases, where mechanical force may be sufficient. The correctness of the leading positions of the reporter, is, we believe, generally admitted.

The volume concludes with the annual address of the President of the Society, Dr. N. S. Davis. The subject of this address is the question, "What influence are alcoholic liquors capable of exerting, either in preventing or curing tubercular disease of the lungs?"

Our readers are well aware that, in consequence of the reference, by modern pathology, of tuberculization to defective hæmotosis and imperfect nutrition, as its essential cause, the popular prescription of the present period, for tuberculosis of the lungs, sanctioned by medical men of the highest reputation, is free, nay, severe exercise in the open air, and plenty of beef-steak, with wine and brandy *ad libitum*. The sanction of the alcoholic drinks in tuberculous subjects being supposed to be fully sanctioned by the doctrine recently advanced, that their action, when taken into the stomach, is to retard the metamorphosis of tissue.

The question discussed by Dr. Davis is one of peculiar interest and importance, in view, on the one hand, of the increase of tubercular phthisis in our midst, and the inefficacy of all the various plans of treatment heretofore devised to arrest its fatal progress, and, on the other hand, the relations which alcoholic drinks bear to the great social and moral interests of society, that invest every proposed application of them, even in the treatment of disease, with a fearful responsibility. It is in this light the question is viewed by Dr. Davis, and concisely, but with great force and ability, he examines it. Inquiring first, into the conditions of the human organism which constitute pulmonary tuberculosis, or the predisposition to it, and, secondly, the actual changes in the fluids and solids, or in the properties and functions of the human organism, produced by alcoholic liquors.

We wish we could spare the space to give in full the sound, sensible remarks Dr. Davis makes in reference to these two leading inquiries, but are only able to lay before our readers that portion of the address which comprises the result of his clinical experience in respect to the prophylactic and curative influence of alcoholic drinks in pulmonary consumption.

"During the past twelve months," says Dr. D., "I have kept a careful record of all the well-marked cases of tubercular consumption which have come under my own observation. I have taken special care to ascertain both the present and preceding habits in regard to the use of alcoholic drinks in each individual case. The whole number of cases, so observed and recorded, is 37; of whom 10 were natives of the United States; 24 of Ireland; 1 of England; 1 of France; and 1 of Germany. Of the whole number, 26 were males, and 11 females. Of the whole number only 6 were totalers, or such as wholly abstain from the use of intoxicating liquors. Of the remaining 31, six drank alcoholic liquors only occasionally, or at irregular intervals; while the remaining 25 drank either distilled or fermented liquors almost every day, until the pulmonary disease had made such progress that they were compelled to desist, either from want of means to buy them, or from their positively aggravating

the disease under which they were labouring; and six of the number had been, one or more years, what the world calls *habitual drinkers*. If we had taken the utmost care to select cases for the purpose of demonstrating experimentally whether alcohol possessed any power to control the progress of tubercular development, by its continued use through a series of years, we could not have made the experiments more satisfactory than some of the cases embraced in this record."

Two cases are given to show that "a liberal use of beer," with a full supply of nutritious food, will neither prevent the occurrence of pulmonary consumption, nor cure it after it has occurred. In both these cases, a female and a male, there was no evidence of a hereditary predisposition. Two other cases are given, both males, with no evidence of hereditary taint, to show the same fact in reference to the use of distilled spirits.

Dr. Davis supposes the present popular and professional opinions in favour of the use of alcoholic drinks for the prevention or cure of pulmonary tuberculosis, may be accounted for in three ways, namely:—

"*First.* Those opinions are based, with many, exclusively on the delusive idea, still very prevalent, that these liquors are actually tonic or invigorating to the human system under ordinary circumstances. They say, consumption is a disease of debility—alcoholic liquors are tonics—therefore, alcoholic liquors are beneficial in that disease. Like a recent writer in the *Westminster Review*, they reason *logically*. To prove that alcohol was food, he said, 'food is force'—'alcohol is force'—therefore, alcohol is food.' Both employ syllogisms, but both forget to prove their premises; and both forget that we might, with just as good logic, say that food is force—steam is force—therefore, steam is food.

"*Second.* The influence of alcohol in exhilarating the brain, in many cases lessens, for a time, the extreme sensitiveness which accompanies some cases of consumption, renders the patient more tranquil, and thereby produces an apparent temporary advantage. Another influence of alcohol, namely, its tendency to diminish the organic actions and excretory functions of the system, enables it in some cases of phthisis, characterized by rapid emaciation, to check that process, and, in some instances, to give an apparent increase of nutrition by retaining more of the fatty matter in the system. But, in every case that has come under my observation, this apparent benefit has been only temporary, the apparent increase of nutrition unhealthy, and the patients, in the end, sink more rapidly than in ordinary cases. In one instance of this kind, a *post mortem* revealed extensive uncicatized cavities in the lungs, extensive fatty deposits in the liver, and slight fatty degeneration of the muscular structure of the heart. Some have claimed that alcohol, by diminishing the processes of disintegration and waste, performed an office equivalent to the taking of more food. If this were true, opium would be much more efficient food than alcohol; and we should only require some agent capable of arresting disintegration altogether, to enable us to live perpetually without the inconvenience of paying board bills.

"*Third.* The greatest cause of error in estimating the effects of alcohol on the consumptive, is the universal custom of recommending, along with the alcoholic drinks, a thorough change of habits, active exercise, nutritious food, and often a change of climate, and then making no distinction between the effects of the alcohol and the accompanying circumstances. All know that, in many cases of chronic disease, if we give the patients bread-pills, and exact the proper exercise, diet, etc., they get well. They, of course, are willing to swear that the pills cured them; and, I much fear, that in reference to alcoholic drinks, many physicians not only deceive their patients, but themselves.

D. F. C.

ART. XXII.—*Reports of the New American Institutions for the Insane.*

1. *Report of the (General) Government Hospital for the Insane, near Washington, District of Columbia, for the year 1855.*
2. *Reports of the Massachusetts State Lunatic Hospital, at Taunton, for the years 1854 and 1855.*
3. *Report of the Northern Lunatic Asylum, of the State of Ohio, at Newburg, for the year 1855.*
4. *Report of the Southern Lunatic Asylum, of the State of Ohio, at Dayton, for the year 1855.*
5. *Report of the Western Lunatic Asylum, of the State of Kentucky, at Hopkinsville, for the year 1855.*
6. *Reports of the Tennessee Hospital for the Insane, near Nashville, for the years 1852, 1853, 1854, and 1855.*
7. *Reports of the Mississippi State Lunatic Asylum, at Jackson, for the year 1855.*
8. *Insane Asylum of North Carolina.*
9. *Proceedings towards the Construction of Asylums in Michigan, Alabama, Iowa, Wisconsin, and Massachusetts.*
10. *Reports of the King's County (New York) Lunatic Asylum; the Hamilton County (Ohio) Lunatic Asylum.*
11. *Western Pennsylvania Hospital at Pittsburg.*
12. *Private Establishments for the Insane.*

It has been our wish, for many years, to present to such of the readers of the *American Journal of the Medical Sciences* as are interested in the subject of psychiatry, all the facts necessary to a complete and comprehensive—although it may not be of a detailed—history of the progress of the scheme for the melioration of the condition of the insane in the United States of America. As new institutions have been established, they have been duly recorded; as soon, at least, as we have received official information from them. Every report which has reached us from the older institutions has been chronicled, together with such facts as it may have contained indicative of progress in the method of treatment, or otherwise illustrative of the general subject of mental alienation.

Within the last ten years, however, the sphere of action in regard to institutions for the treatment of the insane has been so greatly expanded, and new hospitals have been so rapidly established, that we now find ourselves somewhat behind the times. It is proposed, in this article, to remedy that defect. It is intended to place our readers, as nearly as possible, *au courant* in regard to the subject. The reports from recently-founded, regularly-organized institutions will first be passed under review. Those from some other establishments will be noticed, and, before closing, an attempt will be made to give a general view of the insane hospital scheme, by a tabular synopsis.

1. In August, 1852, the Congress of the United States made an appropriation of one hundred thousand dollars "for the purchase of a site, and the erection, furnishing, and fitting up of an asylum for the insane of the army and navy, and of the District of Columbia." In the following October, Dr. Charles H. Nichols was appointed, by the Secretary of the Interior, as superintendent, with authority to select a site, and conduct the prosecution of the work upon the establishment.

Several farms within the district were examined, and the one believed to unite the greatest number of advantages purchased, for the sum of twenty-seven thousand dollars. It contains one hundred and ninety acres, and is situated "on the southeast side of the eastern branch of the Potomac, nearly due south from the Capitol, and about two miles from it in a direct line." The land rises rapidly, though not precipitously, from the shore, until it attains the height of about one hundred and seventy feet from the surface of the river, at high tide, and then extends backward in a broad plateau, slightly undulating, and free

from stone. The declivities are broken by ravines, some of them natural, others produced by the flow of water; some cultivated, others covered with their original forest. More than one hundred acres of the land is under cultivation, and several peach-orchards are upon the place, producing, in some seasons, no less than a thousand bushels of that delicious fruit.

The site is eminently adapted to the purpose for which it has been selected. It is secluded, yet easily accessible. It is elevated and salubrious. It is easily drained, and affords, from springs, an abundant supply of water. The land is fertile, and easily cultivated. The surface presents uncommon facilities for almost every variety of landscape-gardening, from the smooth and level lawn to the wild and picturesque ravine.

The hospital is situated upon one of the most elevated points of the plateau, about twenty rods on the north, and forty rods on the west, from the commencement of the declivity towards the river. Its base is nearly upon a level with the eaves of the Capitol. The panorama from it comprises almost the whole of each of the cities of "Washington, Georgetown, and Alexandria, the heights north of the two former, the Virginia hills on the south, and the Potomac and the eastern branch for several miles." Few views are more diversified or more beautiful. "The building itself will be one of the most conspicuous ornaments of the District, and will be visible to more people, and from more points, than any other structure, excepting, perhaps, the Capitol, and the Washington Monument when completed." Its general plan is linear, modified from that of any previously constructed edifice of the kind, but consisting of a central building and two opposite wings. It is of the castellated Gothic style of architecture. Its whole length, in a direct line between the extremities of the wings, is 720 feet. Each wing is divided into four sections. The first section unites with the central building at the middle of its side, through the medium of floors and lattice-work, permitting free ventilation between the two.

The front of the second section is eight feet further back than the rear of the first. The front of the third section is on a line with the rear of the second. The fourth section is placed at right angles with the third, and, of course, parallel to the central building. The lapping of the second section upon the first, and of the third upon the second, is 36 feet. The first and the second sections are each 42 feet wide, with rooms upon either side of a central corridor. The third section is 30 feet wide, with rooms upon but one side of the corridor. The fourth is 74 feet long and 40 feet wide, with rooms upon either side of the corridor. The first and the second sections are three stories in height; the third and the fourth sections but two stories above the basement. At the union of either section with the next adjoining, there are projections in front, which break the monotony of the façade. At the union of the second section with the third, this projection is elevated into a tower one story higher than the second section. The ceiling of the first story is twelve feet from the floor; that of the second, fourteen feet; and that of the third, twelve feet. The essential difference between this plan and that of the hospital at Trenton, consists in the placing of each successive section at a greater distance back of the one which precedes it. This more effectually destroys the uniformity of the façade, affords greater facilities for ventilation and the introduction of light, and renders the internal construction, in some respects, more convenient. The building is warmed by hot water, the radiating tubes being in the basement. It is lighted by gas, which is made on the premises, and supplied with water by forcing-pumps, moved by a steam-engine in the laundry.

Most of the wood-work within doors is finished without paint; being rubbed down and varnished. Each ward takes its name from the wood with which it is finished. Thus, there is the Beech Ward, the Sycamore Ward, the Oak Ward, the Poplar Ward, the Maple Ward, the Walnut Ward, the White Ash Ward, the Yellow Pine Ward, and the Pitch Pine Ward. It is intended, if a sufficient number of workable American woods can be procured, to finish no two wards throughout the whole establishment with the same kind.

The rooms for the most violent class of patients are constructed in nowise differently from those intended for the more quiet, with the single exception

that, as it becomes necessary, an internal shutter of strong wire gauze is attached, as a guard to the window. In the apartments for patients, the windows are made in the ordinary style of those for dwelling-houses. Both sashes, however, are of iron, and the panes of glass but six inches wide by about thirteen in length. Neither sash will open more than five inches. The two are connected by a peculiar contrivance of levers, placed in the window-head, so that when the lower one is raised the upper one falls. The apparatus for this movement is entirely concealed, and appears to be less liable to disarrangement and breakage than that of pulleys and cords.

Two hundred feet in the rear of the extreme section of each wing, there is a "lodge for colored patients," two stories in height, 52 feet in length by 35 feet in width, with a central projection, upon both the front and the rear, of 8 feet from the façade, and 25 feet in length. The entrance, the stairs, and the dining-room are in this projection of the front, and an exit into an airing-court, and an associated dormitory, in that of the rear. This dormitory is sufficiently large for four patients. The remainder of the floor is occupied by an attendant's room, a bath-room, separate dormitories for six patients, and the central gallery or corridor. The second floor is arranged like the first.

In the report transmitted by Dr. Nichols to the Secretary of the Interior, on the 1st of October, 1855, we are informed that the institution was organized on the 1st of January, 1855, and the first patient admitted on the 15th of the same month. On the 22d of January, and again on the 12th of March, patients were transferred to this hospital from the institutions in Baltimore. They were removed under the immediate supervision of Dr. Nichols. The number of them was fifty-one.

	Men.	Women.	Total.
Patients admitted to June 30, 1855 . . .	26	37	63

"Upwards of five-sixths of these patients had resided in one or the other of the Baltimore institutions for periods varying from fourteen years to a few months, the average duration of such residence having been upwards of five years.

"Only five had been insane, at the time of admission here, for a less period than one year, and the average duration of the insanity of the remaining fifty-eight has, at this time, been not less than six years."

Of the five recent cases, three have recovered, and it is thought that one of the other two is curable. Of the chronic cases, only two "hold out the least prospect of restoration." It is thought that, by the close of the year 1855, there will be as many as one hundred incurables in the hospital. "After that, a considerable proportion of the cases admitted will be recent, and I see no reason why as many restorations, in proportion to the admissions, may not be expected here as under the most favorable circumstances, while the recoveries in proportion to the numbers resident must continue to be very small." In the report for 1854, it was estimated that there were "ninety-four unfortunates actually in hospitals, jails, and private custody, who will be entitled to the benefits of the institution according to law;" but, in the report for 1855, it is stated that "the whole number having claim to the benefits of this institution is considerably greater than that given in the last report."

Dr. Nichols thinks that the whole building will be necessary for the accommodation of patients as early as the year 1859. The amount already expended is \$171,341: of which \$27,000 was for the farm; 3,000 for wharf, aqueduct, and reservoirs; \$18,600 for wash, gas, and engine-houses; \$12,000 for lodge for colored patients; and \$110,721 for that part of the hospital building which is completed. This completed portion incloses 829,390 cubic feet. The portion to be erected will inclose 1,610,886 cubic feet. Its estimated cost is \$214,784.

It is proposed to inclose an area of forty acres, including the buildings, by a brick wall 9½ feet in height, "as a condition necessary to the privacy, exercise, and industry of the patients." It will run mostly below the brow of the hill, not within sight from the hospital. Its estimated cost is \$13,872.

2. In pursuance of an Act of the Legislature of Massachusetts, approved in May, 1851, authorizing the erection of a second Hospital for the Insane in that State; a farm of one hundred and thirty-three acres, in Taunton, was purchased; buildings erected thereupon, and the whole property delivered by the commissioners into the hands of the trustees in February, 1854. The expenses were defrayed by legislative appropriations to the amount of one hundred and fifty-four thousand dollars, and a donation of about thirteen thousand dollars, part from the town of Taunton, and part from some of its inhabitants.

The farm "is in an elevated and airy situation, covered here and there with wood, and bordering upon a pond and river, which add not a little in variety and beauty to the view." It is said that the building is "a handsome and well-built structure." Its general plan is identical with that of the hospital at Worcester, consisting of a central portion and two wings, with "return wings" joining the latter at a right angle at their extremities, forming three sides of a parallelogram. A third wing, in the rear of the central portion, is of equal length with the return wings, and parallel to them. The internal construction of the hospital was, in one respect, far behind the times. The building was intended for two hundred and fifty patients, and there were no less than forty-two rooms "built of stone, and brick, and iron, and finished throughout with a view chiefly to strength. The walls were of brick, sixteen inches thick, and were whitewashed on the brick. They were placed along the centre of the wing which was devoted to them, having a narrow passage-way before and behind, and consequently having no windows opening to the outer air, and few of them any view but of the same gloomy, white prison walls. A small opening in the rear of each cell, guarded by strong iron bars, answered for a window; the doors were narrow, and made of the same material (we suppose that the author means *iron*, although the language does not convey that idea), each provided with two ponderous and formidable looking locks. By the side of the doors was a small aperture, just large enough to pass in food. The floors in the two upper stories were of wood. In the rooms of the lower story, which were probably designed for filthy patients, and such as should refuse to wear clothing, they were of stone, made sloping; and terminating in front of the cells in a stone gutter for the convenience of washing them out. The stones also were heated to afford warmth to the naked inmates who were expected to rest upon them."

These were called, *par excellence*, "strong rooms." Verily, the term was no misnomer. It is remarkable that such relics of antiquity should have been preserved, at this day, in Massachusetts. It is astonishing that there should have been so great a retrogression from the true *status* of psychiatry in the Eastern and the Middle States. But man is almost ever conservative. He listens to tradition with the ear of faith. He clings tenaciously to precedent, be it evil or be it good—most especially if it be evil. But, it matters not, now, in reference to the case before us. Miss Dix commenced an intellectual and moral bombardment of the "strong rooms." Dr. George C. S. Choate, who was appointed Superintendent of the Hospital, brought his forces to the attack. Strong as were the rooms, they were not sufficiently so for self-preservation. They were razed, demolished, "not one stone left upon the top of another," and superseded by others, constructed in the ordinary style. To meet the expense of this and other improvements, and to supply the house with furniture, the legislature made appropriations amounting to thirty-two thousand dollars.

The hospital is heated by steam, and lighted by gas. "Scarcely any other single thing," remarks Dr. Choate, "contributes so much to the cheerfulness of a hospital, as gas. To the long winter evenings, which, in hospitals lighted in any other way, must be seasons of gloom and weariness, the brilliantly lighted halls impart a comfort which brightens the desponding heart, and, in spite of themselves, cheers into mirth and sociability many a morose and ascetic soul."

"On the 7th of April, 1854, the first patient was admitted, and, in the short space of eight weeks from that time, the hospital had received the whole num-

ber of patients for which it was designed. The rapidity with which it was filled is probably without a parallel in the hospital history of this or any other country." We have already described the exodus from the Worcester Hospital of 210 patients (Dr. Choate says 211), who were transferred to this establishment; a large portion were "old, helpless, and demented."

	Men.	Women.	Total.
Patients received from April 7 to Nov. 30, 1854 . . . . .	156	174	330
Discharged, including deaths . . . . .	48	43	91
Remaining, Nov. 30, 1854 . . . . .	108	131	239
Of those discharged, there were cured . . . . .	15	21	36
Died . . . . .	14	10	24

The average duration of insanity in the cases from Worcester was 6 years and 73 days; that of all the others, 2 years and 35 days. Consequently, a large number of cures could not be expected.

*Causes of Death.*—Phthisis, 6; dysentery, 6; maniacal exhaustion, 3; apoplexy, 3; fever, cancer of the uterus, inanition, old age, anæmia, and gangrene, 1 each.

"During the months of August and September, dysentery of rather a bad form prevailed in the house to a considerable extent; though, perhaps, it was not more prevalent than it was in the neighbouring town and adjacent places. \* \* \* \* The cholera, several cases of which occurred in our immediate neighbourhood, passed us by unscathed."

Among the patients is a boy but six years of age. The nature of his case is not mentioned in the report.

*Age at the time of Attack.*—Under five years, 2; between five and ten, 1; ten and fifteen, 5; fifteen and twenty, 28; twenty and thirty, 119; thirty and forty, 81; forty and fifty, 44; fifty and sixty, 24; sixty and seventy, 8; seventy and eighty, 3; unknown, 15.

We fully believe that it will yet be demonstrated that the greatest liability to insanity, in this country, is in the decennium from twenty to thirty years.

Dr. Choate remarks that the Irish already constitute nearly one-third of the whole number of patients, and that "it is a well-ascertained fact that, in our hospitals, a much smaller proportion of Irish patients recover, than of Americans." He attributes the large percentage of insanity among our Irish population, to disappointment of the exalted hopes and expectations with which they immigrate, homesickness, and the physical change wrought in their constitutions by the voyage and change of climate.

In his comments upon the "strong rooms," above mentioned, and the results of their demolition, he says: "During the eight months, since this hospital was opened, there have been received every class of patients. Of the 211 who came from Worcester, no selection was made in our favour; of the 119 received since, it is fair to suppose that the average share were troublesome patients; and, if not, it would be exceedingly improbable that there should not have been a few, at least, who would try the system thoroughly. *But not a single case has occurred to make us feel the need of anything different from the ordinary room.* Vigilance, attention, and kindness are stronger than walls of stone or bars of iron. \* \* \* \* The only mechanical means of restraint made use of in this hospital, are the ordinary leathern strap passed around the waist, with leathern rings attached for the wrists, and the camisole. The former we use with male patients, when required—which is seldom, only one man wearing them at the present time, and often none being in use in the house. The latter is now the only means used with females. It consists of the ordinary waist, made of some strong materials, with the sleeves made longer than usual, and sewed up at the ends. The arms are then folded across the chest, and the ends secured behind. We seldom have more than four patients who wear this dress."

Of the patients, forty of the men have worked on the farm, and ten in household employments; and about thirty of the women have been occupied in the

work of the sewing-room, the laundry, and the kitchen. Two evenings of the week are devoted to a singing-school; one to an exhibition of views with the magic lantern, and one to a social party. A bowling alley is in process of construction. Religious exercises are held on the Sabbath, as well as upon every evening of the week.

The changes in the population of the hospital during its second fiscal year, are shown by the following schedule:—

	Men.	Women.	Total.
Patients on the 30th November, 1854 . . . . .	108	131	239
Admitted in course of the year . . . . .	83	84	167
Whole number in course of the year . . . . .	191	215	406
Discharged, including deaths . . . . .	65	79	144
Remaining Nov. 30, 1855 . . . . .	126	136	262
Of those discharged, there were cured . . . . .	34	36	70
Died . . . . .	17	21	38

Died of phthisis, 5; maniacal exhaustion, 4; apoplexy, 4; softening of the brain, 4; marasmus, 4; anæmia, 2; disease of liver, 2; erysipelas, 2; diarrhœa, 2; dysentery, fever, old age, gangrene, epilepsy, paralysis, disease of heart, peritonitis, and chorea, 1 each.

"The two deaths from erysipelas were isolated cases, occurring soon after the admission of the patients, and do not indicate any local cause here for that terrible malady. \* \* An almost entire immunity from acute disease has been enjoyed."

"Among the deaths were those of a mother and her daughter. The latter entered the hospital, April 28, 1855, with softening of the brain, and died May 25. None of her family or relatives had ever been known to be insane before. On the day before her death she was visited by her mother, a lady of seventy years, who was deeply affected at the sight of her daughter's condition, and from that moment began to exhibit unequivocal symptoms of insanity. The unfortunate termination of the disease of the first, probably led her friends to retain the second as long as possible at home; but, on the 2d of July, the latter was placed under our charge. At first, exhibiting the usual symptoms of subacute mania, she soon became quiet, and gradually pined away, without any apparent bodily disorder, and died about two months after her admission. \* \* \* A son, the only surviving child, who visited the mother during her illness, and was extremely anxious and unhappy about her, was soon afterwards attacked with the same mysterious disease. That there was an hereditary taint in this family, though it may have lain dormant through one or two generations, there can be little doubt."

The following remarks have a bearing upon the practical operation of the substitution of ordinary apartments for the "strong rooms," above mentioned.

"Not a case has occurred, during the past year, in which we have felt the slightest necessity for anything different from our present arrangements for the safe keeping of any *insane* person committed to our charge. In one case, that of a homicide committed from the State prison, and who was exceedingly ingenious in his efforts to escape, and highly dangerous, it was thought best to add some little defences to the door and window of his room."

Upon the true mission of a hospital for the insane, and the evidences that such mission is in progress of fulfilment, Dr. Choate says: "Much the larger portion of the inmates of this and every other lunatic hospital, are incurables, many of them lingering year after year in its halls; and, unless all proper means have been made use of to secure their comfort, to calm their excitements, to bear with patience the outpourings of their diseased passions, to beguile their long, weary hours, and to improve, as far as may be, their habits and thoughts; no hospital, however large may be the proportion of its cures, can be said to have done its whole duty. The good government and successful career of a hospital are seen best in little things, in daily cares, each trifling in itself, but, in the aggregate, deciding the comfort or misery of the household; in the patience with which the daily vexations are met and borne, most

of all in the persevering spirit of kindness and gentleness which will overcome the most ferocious and savage minds."

He thinks that to form a correct opinion of a hospital, we must found our judgment upon the degree of attention paid to the incurable, the furious, and the filthy.

If these "are well cared for; if seclusion and mechanical force are the exception instead of the rule, and are never used to save trouble, but only when deemed beneficial; if means are taken to employ them, although their labour may be of no value, and to amuse them, although they are incapable of affording any gratification in return; if pains are taken to treat them with courtesy and attention, although the only return may be ingratitude, then it is probable that the former class (the curables, and interesting cases) also are well provided for."

For the proper care of the incurables, he would have them furnished with "pleasant dwelling-places; the comforts of life, as far as they can appreciate them; as much freedom of action, and admission to the air and light of heaven as possible; \* \* \* more numerous attendants, and those of the best character and adaptedness to their business;" \* \* \* and the advantages which may accrue from a "more frequent and closer inspection of the supervisory power."

This is all very well; but, in our opinion, Dr. Choate does not carry his scheme sufficiently far. The patients in question, before they will be, or can be, properly treated, must be subjected to the disciplinary, hygienic, and educational exercises of a school for the idiotic, as we have already suggested in one of our former notices of reports.

3. The Ohio State Lunatic Asylum, at Columbus, has for several years been entirely inadequate to the demand for that kind of hospital accommodations which it was designed to furnish. Hence, a movement was made with the object of increasing such accommodations; and it was at length decided, by the Legislature of the State, that two new hospitals for the insane should be established. Appropriate buildings have been erected, and the two institutions are now in operation. They are designated by the titles "Northern Ohio Lunatic Asylum," and "Southern Ohio Lunatic Asylum."

The Northern Ohio Lunatic Asylum is at Newburg, near Cleveland. The report contains no description of it further than the assertion that it was designed for one hundred and twenty-five patients, but will accommodate one hundred and fifty. The superintendent, Dr. L. Firestone, took charge of the establishment on the 1st of December, 1854, and the first patient was received on the 5th of March, 1855. From that time until the 15th of November, the end of the fiscal year, 164 patients were admitted, of whom 66 were males, and 98 females. Discharged, recovered—males 17, females 25; total, 42. Died—7 females. Remaining—47 males, 65 females; total, 112.

"The intention, when opening the building," remarks Dr. Firestone, "was to receive no patient whose insanity was of longer duration than two or three years; but circumstances presented themselves rendering it impossible to adhere strictly to the rule. \* \* \* The great design of the Asylum is to cure patients, and, as a general rule, none but those considered curable, should be received."

"One patient was only nine years old—a very unusual age to be afflicted with loss of reason. This was a little girl who had an attack of typhoid fever, the disease doubtless being an exciting cause of her insanity. She was brought here emaciated, raving, and furious. \* \* \* I am happy in being able to state that the little patient has recovered."

"The last summer (1855) appeared to be favourable for the generation of malaria, and in consequence the country around had many cases of chills and fever, remittent fevers, and many cases of marked intermittents. The inmates of the building did not wholly escape this cause, but at the same time the diseases were easily controlled by the appropriate remedies."

In his remarks upon the causes of mental disorder, Dr. Firestone draws the following picture. Our readers can judge of its merits in regard to truthfulness:—

"How many instances we have of young girls being denied the exercise they require for the full development of their systems. They are cooped in poorly ventilated apartments; the sun must not strike their delicate hands—must not tinge the skin. The more nearly they can be made to approximate the appearance of a corpse, the more beautiful in the estimation of some mothers. Nature cannot paint their handsome cheeks, but the mother can, with some far-famed rouge. They must not work, as it would, in their estimation, be a mark of great indignity; they must not assist their mothers in the affairs of the household, as it would be exceedingly vulgar; they must not wash, or mend their father's clothes, or cook his victuals, as it would roughen the skin upon their soft, tapering fingers, and soil their lily-white hands. If they venture out of doors, it must be with bare necks, well powdered; thin, delicate shoes, and a whalebone strait-jacket to cramp their lungs. For their daughters to wear warm, thick clothing, would be a species of rudeness intolerable to the very sensitive mother. No wonder we see so many pale and sickly faces; no wonder our asylums have so many inmates."

He thus gives his opinion of the so-called "spirit-rappings," to which the insanity of eleven of the patients was attributed:—

"It is to be deplored that every good man, every well-wisher of his race, should be under the necessity of making war with another, not physical, but moral contagion, that has lately sprung into existence, misnamed *spirit-rapping*. The natural causes of disease are sufficiently numerous, without adding that which has no foundation in reason, no reality—an *ignus fatuus* that is doing more harm in a moral point of view than any system of infidelity, any other imposture that has of late years—and may I not say that has ever infested the moral world? \* \* \* The fact that men of sense and character will run after such a will-o'-the-wisp is one of the most striking exhibitions of moral obliquity which the history of fanaticism can furnish. It is to be hoped that in this age of general intelligence, education, and gospel light and privileges, this monster will soon be swept into oblivion, and only remembered in sighs and repentant tears by those who have been so unfortunate as to have become its dupes."

The subjoined extracts illustrate some parts of his system of moral and of medical treatment:—

"In the management of patients, we have uniformly endeavoured to treat all with the utmost kindness. \* \* \* A raving maniac can be more securely bound by acts of benevolence and kindness than by any other means of restraint. A smile is more potent in quieting a madman than a frown. Patients are often brought to us tied with ropes, and secured with handcuffs and chains. They were said to be furious and unsafe if not thus secured. We have invariably taken off all such means of restraint, and have thus far been able to quiet them by a good shake of the hand, a hearty welcome, and the assurance that they were among friends. We have never as yet been under the necessity of repenting our course."

"The medical treatment has varied with the peculiarities of each individual case. \* \* \* As a general rule, we give tonics and anodynes. These, perhaps, form a leading prescription. Most patients are more or less reduced, and need support. We, as yet, have not drawn an ounce of blood from a patient under treatment, and something very special must occur as a complication, or we must have a radical change in our views as to the correct treatment, if we ever will."

"It will not, I trust, be considered out of place to allude to an error that has from some cause been adopted by many physicians in the State. It is no uncommon thing for patients to be bled till they are almost bloodless, before being brought to the Asylum. A more fatal error could not be committed for the welfare of the patient. In such cases we invariably have trouble. We endeavour at once to restore the strength and tone of the system. It takes a long time to do this. Such cases almost invariably linger a long time before they recover. We have, as yet, been able to discharge but one patient thus treated before being brought to the Asylum. \* \* \* Before concluding this

subject, permit me to allude to puerperal mania. As far as I can learn, a vast majority of such cases are bled profusely. I think I may safely say that four out of five are thus treated. *Fatal error!* This form of mental derangement, if properly managed, is favourable, and has perhaps as large a percentage of recoveries as any other form. Those treated by bloodletting linger a long time, and a large proportion never recover their reason. It was a remark of Marshall Hall, that on visiting a case of puerperal mania, he would ask if the patient had been bled; if the answer was in the negative, he would reply that it would probably get well; if in the affirmative, it would probably die.”<sup>1</sup>

4. The Southern Ohio Lunatic Asylum is situated one mile and a half south-east of the city of Dayton. It is upon an eminence commanding a fine view of the surrounding country. Its general plan is linear, comprising a central building with a wing upon either hand. The former is four stories, the latter are three stories high above the basement. The stories average about fourteen feet in height. The whole length of the building is 328 feet. The central part projects 42 feet in front of the façade of the wings, and nearly as far beyond the rear wall of the latter. At the connection of the wings with the main building there are glazed doors, protected by iron gates, in both front and rear, for the purpose of promoting ventilation. At the remote extremities of the wings there are projections in both front and rear. The former gives space for a large parlour for the patients; the latter, for that important appendage, an infirmary. The dormitories of the patients are upon both sides of the corridor which traverses each wing. The bakery and the wash-house are in a building 131 feet in the rear of the central edifice, and connected with it by an inclosed walk.

The building is heated by steam, and lighted by gas, which is manufactured on the premises. A spring, 1,100 feet distant, discharges about one thousand barrels of water per day. The supply for the asylum is brought by iron pipes into cisterns, and thence forced by steam into tanks in the attic of the central building.

The establishment furnishes accommodations for 150 patients. It was opened, under the superintendence of Dr. Joshua Clements, on the 1st of September, 1855. From that time to the 15th day of November, the close of the fiscal year, 59 patients, of whom 30 were men and 29 women, were received. Eleven were discharged, of whom 4 were restored to health. There were no deaths. Of those who remained, many were incurable, including chronic cases and epileptics, some of which had been in other asylums from three to five years.

In reference to the etiology of mental alienation, Dr. Clements says: “A brief residence with the sufferer often reveals the true cause. We have two cases of acute mania, supposed to be brought on by the intemperate use of liquor. Previous to the attack, they were noted for their sobriety. One, after the loss of his fortune through the bank crisis of last winter, the other from disappointed affection, suddenly became intemperate drinkers. The one after nine, the other after fifteen days of protracted drinking, were placed under our care.” Since the publication of the report, Dr. Clements has left the institution, and been succeeded by Dr. J. J. McIlhenny.

5. The State of Kentucky has founded a second institution for the insane. It is at Hopkinsville, and is technically known as the Western Lunatic Asylum, while to the title of the old establishment at Lexington the distinguishing adjective *Eastern* is prefixed. We have met with no history of the origin and progress of this new asylum prior to the time at which it was opened for the reception of patients. This was on the 18th of September, 1854. The farm connected with the institution, contains 385 acres. In his report for 1854-55, the superintendent, Dr. S. Annan, gives the following general description of the building: “The entire front is 370 feet, and two wings extend back at right

<sup>1</sup> Since the above was written, Dr. Firestone has been superseded by Dr. R. G. Hopkins, as superintendent.

angles 190 feet. It is four stories high, including the basement, and will accommodate 350 patients. \* \* \* While solidity and durability have been chiefly regarded, appearance in the style of architecture has not been overlooked. The magnificent portico fronting the public highway, with its six lofty columns and its graceful entablature, is in the highest degree ornamental. \* \* \* The arrangements for ventilation are very complete. A ventilating flue passes from every sleeping-room to ventilating cupolas on the roof. A strong current of air can be forced through the lattice-work of these cupolas, by means of heat produced from a range of steam-pipes inclosed in a chamber under each cupola. It is designed to warm the building by steam." In another part of the report it is stated that "the asylum is not yet one-third finished."

The subjoined summary shows the movement of the population from the time of opening until the 31st of December, 1855:—

	Men.	Women.	Total.
Patients received . . . . .	65	48	113
Discharged, including deaths . . . . .	21	11	32
Remaining . . . . .	44	37	81
Of those discharged, there were cured . . . . .	4	4	8
Died . . . . .	13	4	17

Of the patients admitted, 15 men and 14 women were transferred from the Eastern Asylum.

*Causes of Death.*—"Epileptic convulsions (combined in two cases with diarrhoea, in one with acute dysentery, and in one with pleuro-pneumonia), 6; pulmonary consumption, 2; chronic diarrhoea, 2; malignant pustules and erysipelas, 1; cholera morbus, 1; tabes mesenterica, 1; congestion of the brain, 1; apoplexy, 1; chronic dysentery, 1; fever, sequel to cholera, 1.

"Owing to the hard limestone water and the insufficient supply of vegetable food, especially of potatoes, during the winter of 1854-55, there was a great deal of disease in the house. Diarrhoea was very troublesome, and towards the end of the winter the scurvy made its appearance, and rendered all other diseases more unmanageable. \* \* \* Epidemic cholera broke out in the beginning of August, and on the first day I prescribed for seven cases. It continued about two weeks, and fifteen cases were treated, all of which recovered. One more case occurred in the second week of September, which was the case that terminated fatally from choleraic fever." Dr. Annan attributes the mildness of the epidemic to the constant use, for cooking and drinking, during the summer, of rain-water, instead of the ordinary supply of water, which, as above mentioned, is highly impregnated with lime. In the table of etiology, one case is assigned to "impotence from mumps."

6. In the winter of 1847-48, Miss D. L. Dix presented a memorial to the Legislature of Tennessee, representing the inadequacy of provision in that State for the proper care and treatment of the insane, and urging the establishment of a new institution in place of the old asylum at Nashville. On the 5th of February, 1848, that Legislature passed an act, under the provisions of which a hospital for the insane has been erected upon a farm of 255 acres, distant six miles from Nashville. The general plan of the building is that of the Butler Hospital at Providence, R. I. It is of the castellated style, forming the side and the two ends of a parallelogram. Its front is 405 feet in length, and consists of a central portion and two wings, the latter of which are three stories in height. Attached to the extremity of each of them, and receding at a right angle, is another wing 144 feet in length. The central division contains the offices, the officers' apartments, a chapel, and rooms for quiet and convalescent patients. Water is distributed from a tank in the dome, being driven there by forcing-pumps. The apparatus of the bath-rooms and the water-closets was so badly constructed that it has been necessary to remove the whole of it. At the date of this report, a better had been introduced into one-half of the building. An instructive lesson, this, to persons hereafter engaged in the erection of a similar establishment.

This hospital was opened for the reception of patients on the 1st of March, 1852. On the 19th of April, the patients in the old building at Nashville were transferred to it. There were 60 of them, 39 men and 21 women, and their removal was accomplished without accident.

	Men.	Women.	Total.
Patients admitted to the 1st of October, 1853, including those transferred from the old hospital . . . . .	111	65	176
Discharged, including deaths . . . . .	49	27	76
Remaining October 1, 1853 . . . . .	62	38	100
Of those discharged, there were cured . . . . .	31	11	42
Died . . . . .	4	5	9

*Causes of Death.*—Marasmus, 4; meningitis, 1; epilepsy, 1; apoplexy, 1; dysentery, 1; "delirium," 1.

"The dysentery has prevailed epidemically in the institution," remarks Dr. Cheatham, the superintendent of the hospital, and the author of the report, "the last and the present season. One case only proved fatal."

"Of the thirteen patients who have been discharged, or left, much improved, eight were removed by their friends prematurely. We are satisfied that all would have recovered entirely, if they had been permitted to remain a short time longer."

The second biennial report contains a minute description of the building, with a view of which it is embellished. It has been determined to introduce the apparatus for heating by steam, and for ventilating by mechanical power.

	Men.	Women.	Total.
Patients in the hospital, Oct. 1, 1853 . . . . .	62	38	100
Admitted in the course of two years . . . . .	64	28	92
Whole number . . . . .	126	66	192
Discharged, including deaths . . . . .	63	24	87
Remaining, Oct. 1, 1855 . . . . .	63	42	105
Of those discharged, there were cured . . . . .			40
Died . . . . .			15

Deaths from exhaustion following acute mania, 2; marasmus, 3; epilepsy, 2; consumption, 4; chronic diarrhoea, 1; acute meningitis, 1; apoplexy, 1; effects of a fall, 1.

"The general health of the entire establishment, for the last two years," remarks Dr. Cheatham, "has been remarkably good. No epidemic of a malignant character has visited the institution. Cholera prevailed in Nashville and the neighbourhood, during the months of June and July, 1854, to a considerable extent, yet we escaped entirely. Dysentery, during the last and preceding summers, prevailed in many portions of the country in a malignant form. At one time, during the last summer, we were seriously threatened, and many of our household attacked, but all fortunately recovered."

The buildings not being fully completed, many applicants for admission have been rejected.

7. The Mississippi State Lunatic Asylum is in the township of Jackson. It was opened for the reception of patients on the 8th of January, 1855. It is under the superintendence of Dr. William S. Langley, of whose services the trustees, in their report, speak in terms of high commendation. The building is of brick, and stuccoed. It consists, like most others of the kind in this country, of a central edifice with a wing upon either side. The apartments are warmed by steam, and lighted by gas made upon the premises. The engine-room, kitchen, wash-room, and gas-factory are in detached buildings. The farm contains 140 acres, about 50 of which "have been inclosed with a plain but substantial board fence, and a sufficiency cleared for pleasure and promenade grounds for the patients." The whole cost of the establishment was about \$165,000, and it will accommodate 180 patients.

The report bears the date of December 31, 1855, a few days less than one year from the time at which the institution went into operation. In the course of that intervening period, 70 patients had been received. Of these, 42 were males and 28 females. Seven had been discharged "cured," and 5 had died. At the close of the year, 51 remained in the asylum. "Of those who died, all were hopelessly diseased before they were admitted, three having survived but a few days after they reached the asylum."

"As yet," remarks Dr. Langley, "little has been done towards providing the patients with such occupations and amusements as every well-arranged hospital for the insane should possess." Many of the men have worked upon the grounds, and some of the women have assisted in completing the furnishing arrangements of the apartments. The introduction of libraries, musical instruments, games, a gymnasium, and a calisthenium, is recommended in the report.

One of the primary objects affecting the selection of a site for an institution for the insane is a bountiful supply of water. In this respect, it appears, the Mississippi asylum is imperfect. The trustees suggest the propriety of remedying this defect by an artesian well.

Dr. Langley estimates the number of insane persons in Mississippi to be 376, and that of idiots 150. He bases this estimate upon the results obtained by the commission in Massachusetts in 1854, in connection with the hypothesis—a hypothesis proposed by himself—that the proportion of the insane and the idiotic to the sane is twice as large in Massachusetts as it is in Mississippi.

8. The *Insane Asylum of North Carolina* is one mile distant from the city of Raleigh, upon a tract of land containing about 160 acres. It was opened upon the 26th of February, 1856, under the superintendence of Dr. Edward C. Fisher. The plan of the building is as follows: The central edifice is 80 feet by 120, with a portico the whole length of the front. It is 60 feet high from the basement to the crown of the roof, divided into four stories, which are appropriated to parlors, offices, apartments for the superintendent, steward's dining-room, and chambers for the respective officers. Upon either side of this edifice, a wing projects in a straight line, to the distance of 313 feet. It is three stories high, and contains six wards. The two wings will accommodate 250 patients. The building is lighted by gas and heated by steam. The kitchen and bakery are in a building about 80 feet in the rear of the central edifice. No report has yet been issued from this institution since it was opened. The number of patients on the 21st of July last, was 65.

9. *a.* We proceed to show what has been done in several of the States towards the construction of institutions which have not yet gone into operation.

The Michigan State Asylum for the Insane is situated one mile from the village of Kalamazoo, the seat of the government of the State, and in the immediate vicinity of the Michigan Central Railroad. The farm contains a fraction less than 168 acres. "Most of this land is finely timbered with the original growth of oak, hickory, and other trees. It is designed to preserve about 50 acres in groves and woodland, immediately about the buildings, to be tastefully laid out in walks and drives, and its natural beauties enhanced by art. \* \* \* Probably few situations in the United States, which have been selected for similar purposes, equal this in natural beauty and advantages."

"The building consists of a centre, and six wings. It has a front of 700 feet, and, with the two end wings, which are at right angles to the others, has an entire length of about 1000 feet; the whole being designed to accommodate 250 patients," but the number may be increased to 268.

In the establishment of this institution, the principles and suggestions contained in the "propositions" relative to the construction of hospitals for the insane, which were adopted and issued by the Association of Medical Superintendents of American Institutions for the Insane, in 1851, have been "fully carried out, with the addition, it is believed, of several important improvements."

The building was commenced early in the spring of 1854, and Dr. John P. Gray, then Assistant Physician and Acting Superintendent of the Asylum at Utica, New York, was appointed as Superintendent. Being afterwards elected as the successor of Dr. Benedict, at Utica, he resigned the former appointment, and Dr. E. H. Van Deusen was chosen to fill his place.

b. At the annual meeting of "The Medical Association of Alabama," held at Mobile in December, 1850, it was unanimously "Resolved, that a committee be appointed to draft a memorial to be laid before the Legislature of the State, at its next regular session, setting forth the necessity and advantages which recommend the establishment of a lunatic asylum; and that said committee be requested to attend at Montgomery, for the purpose of aiding Miss Dix in her efforts to that end."

Dr. A. Lopez, of Mobile, was the chairman of the committee, appointed in pursuance of this resolution, and the memorial addressed by them to the legislature embodies, in a very condensed form, a large amount of information adapted to the exigency of the case. In 1852, a bill was passed, authorizing the establishment of a State Hospital for the accommodation of not less than two hundred insane persons; and five per centum of the State revenues, other than trust funds, was set apart, for four years, to meet the expense thereof. The fund thus raised amounted to \$116,000. In 1853, at the request of the legislature, Dr. Lopez visited all the principal institutions for the insane in the United States, and prepared a plan for the hospital, which was adopted by the building committee. This plan includes accommodations for 250 patients, and the modern arrangements for ventilation, warming by steam, and lighting by gas.

A farm of 320 acres, situated about one mile from the University in Tuscaloosa, was purchased, and the hospital buildings commenced thereupon. It was soon found that the fund was insufficient. Another appropriation was granted by the legislature in 1854; but it received the executive veto. In 1855, chiefly through the exertions of Dr. Lopez, an appropriation of \$150,000, payable in three equal annual instalments, was obtained. This also was vetoed by the governor; but the legislature again passed the measure, and by a majority which vetoed that veto. The wings of the building "are now nearly ready for the roof, and the centre building up for the third floor of joists. The carpenter's work is far in advance of the brick work." After his many and persistent labours, Dr. Lopez may at length catch a glimpse of the goal for which he has nobly wrought; and may console himself with the assurance that "All is well that ends well."

c. The Legislature of Iowa, in the course of the session for 1855, made an appropriation of fifty thousand dollars towards the foundation of a State Lunatic Hospital. A farm near Mount Pleasant, in Henry County, has been purchased, and the buildings commenced.

d. It is now several years since a movement was made in Wisconsin to establish a State institution for the insane. A beautiful tract of land, containing 104 acres, and lying upon the banks of Lake Mendota, about six miles from the State capitol, in Madison, was purchased for a site. The legislature made an appropriation of fifteen thousand dollars towards the construction of the necessary buildings. If we have not been misinformed, plans were drawn and contracts for the work were made. Some difficulties then arose of sufficient importance to suspend all operations, and they have not been resumed.

e. In the spring of 1855, the Legislature of Massachusetts authorized the establishment of a new (the third) State Hospital for the Insane, at an expense not to exceed two hundred thousand dollars. A farm in Northampton has been purchased, and the hospital building, designed by Dr. Luther V. Bell, commenced. The corner-stone was laid on the 4th of July, 1856, with appropriate ceremonies, and an address by Dr. Edward Jarvis.

In Arkansas, as well as in Texas, a State Hospital is in contemplation; but whether any proceedings for its establishment have been instituted, we have not been informed.

10. Besides the regularly organized institutions, there are two asylums for

the insane poor, which, as they are separate from the other almshouse departments, and receive a pretty large number of patients, claim attention in this place.

During the last fifteen years, the insane in the Almshouse of King's County, New York, the county which embraces the city of Brooklyn within its limits, have occupied a building erected especially for their accommodation, disconnected from the other edifices of the establishment, and at some distance from them. It is at Flatbush, and is called the King's County Lunatic Asylum. The report for the fiscal year ending with the 31st of July, 1854, is signed by Dr. E. S. Blanchard, the resident physician.

	Men.	Women.	Total.
Patients in the asylum at the beginning of the year . . . . .	74	113	187
Admitted in the course of the year . . . . .	59	78	137
Whole number in the course of the year . . . . .	133	191	324
Discharged cured . . . . .	41	81	122
Died . . . . .	14	10	24
Remaining, July 31, 1854 . . . . .	78	100	178

Died of peritonitis, 4; phthisis, 3; cholera, 3; empyema, 3; diarrhœa, 3; exhaustion, 2; marasmus, 2; epilepsy, 2; "typhoids," 1; softening of the cerebellum, 1.

But two patients in the course of the year were subjected to mechanical restraint. One of these had the suicidal propensity, the other was labouring under violent mania.

Of the 178 patients remaining in the asylum at the close of the year, 134 were foreigners. It appears that some pay-patients are received, the expenses of 16 of those who were in the asylum during the year having been defrayed by their friends.

At the time this report was written, a new edifice, to be occupied by the insane, was in progress. It "is erected on the county farm, on a beautiful site, and commands many delightful views of the surrounding country. When finished, it will compare favourably with any other institution of a similar nature in the world. It is 250 feet in its extreme length, 84 feet in its extreme breadth, and the height to the top of the dome is 86 feet. The halls and dormitories present a light and airy appearance. The rooms are 7 by 11 feet. The height of the ceilings ranges from 14 to 10 feet. Each room is lighted by a large window, on the outside of which there is a light iron guard frame. The whole building will be heated by steam," the radiating pipes being in an air-chamber in the cellar. "The entire structure is of brick, trimmed with stone."

This establishment was opened on the 1st of November, 1855, under the medical care of Dr. Robert B. Baiseley. Although it was intended for but about 150 patients, yet, ever since it was opened, the actual number present has been as high as from 190 to 200.

b. A large portion of the indigent insane of Hamilton County, Ohio, have for many years been kept in the Commercial Hospital at Cincinnati. A meeting of members of the medical profession was held in that city in August, 1853, and the following resolutions were unanimously adopted:—

"*Resolved*, That the lunatic department of the Commercial Hospital is totally unfit for the purposes for which it was intended, and that its continuance as an asylum for the insane is at variance with the dictates of a sound philosophy, and disgraceful to the humanity of a civilized and Christian community.

"*Resolved*, That the commissioners of this county be respectfully requested to investigate the condition of the county lunatics now in the Commercial Hospital, and make such provision for their better comfort, care, and treatment, as the necessities of their present condition, guided by the laws of humanity and justice, may require."

The action of this meeting led to further investigations, and it was soon decided that the insane persons in question should be removed from the hospital. Pending such proceedings as may result in the establishment of a special hospital, a majority of them were transferred to a temporary receptacle at Fairmount, Mill Creek Township, 2½ miles from the centre of Cincinnati. This was opened on the 7th of November, 1853.

	Men.	Women.	Total.
Patients transferred from their previous quarters at the opening . . . . .	48	44	92
Returned from the State Asylum as incurable . . . . .		3	3
Admitted to June 5, 1854 . . . . .	29	29	58
Whole number . . . . .	77	76	153
Discharged, including deaths . . . . .	24	22	46
Remaining, June 5, 1854 . . . . .	53	54	107
Of those discharged, there were cured . . . . .	12	11	23
Died . . . . .	5	1	6

Deaths from consumption, 2; congestion of brain, 1; maniacal exhaustion, 1; dropsy, 1; cholera, 1. "The case of cholera occurred in a person who had been admitted the day previous, and who had recently arrived in the city from the South."

The accommodations proving insufficient, two additional buildings were procured in the course of the second year of the operations of this establishment.

	Men.	Women.	Total.
Patients remaining, June 5, 1854 . . . . .	53	54	107
Transferred from the Commercial Hospital, June 10, 1854 . . . . .	16	16	32
Returned from the Ohio Lunatic Asylum . . . . .	3	10	13
Admitted from other sources . . . . .	65	59	124
Whole number . . . . .	137	139	276
Discharged, including deaths . . . . .	62	53	115
Remaining, June 4, 1855 . . . . .	75	86	161
Of those discharged, there were cured . . . . .	25	23	48
Died . . . . .	18	11	29

Deaths from cholera, 11; phthisis pulmonalis, 6; apoplexy, 2; maniacal exhaustion, 2; typhus fever, 2; ulceration of bowels, 2; marasmus, 1; suicide, 1; scorbutus, 1.

"On the last day of May, 1854, a patient recently from New Orleans was admitted, and was seized with cholera on the 1st of June. In six hours after the discovery of the first symptoms, the patient died. On the 6th of June, a healthy, robust inmate, who had assisted to nurse this patient, and who occupied the adjoining room, was attacked with the disease." No other cases occurred until the 26th, immediately after a change of water used by the patients, from that of cisterns and springs to that of Mill Creek. The disease "soon assumed an epidemic character, spreading through both of the male and one of the female wards, and seizing upon the strongest as well as the more debilitated inmates, though the latter more readily succumbed to its deadly grasp. It prevailed in the male wards fourteen days after its reappearance, before it entered the female ward." Its course in the latter was similar to that in the former, but the mortality was less. "This was owing, perhaps, to the less crowded condition of the females, and to their better bodily health. The disease was confined to the building first rented. Nearly all in this building, who escaped an attack of cholera, suffered from bilious diarrhœa or dysentery. The last case of cholera occurred on the 31st of August."

Twenty-two of the patients were also attacked with scorbutus, although, as it is stated, every effort was made to procure a proper supply of vegetables for the use of the inmates.

The two reports from which the foregoing extracts are made are from the pen of Dr. J. J. Quinn, the Superintendent. Since they were published, Dr. Quinn has been succeeded by Dr. O. M. Langdon.

11. The Western Pennsylvania Hospital, at Pittsburg, an institution for the treatment of general diseases, was founded by voluntary contributions, but, since it went into operation, it has received two donations from the State, one of ten thousand dollars, the other of twenty thousand. It was opened in March, 1853, and from that time until the 31st of March, 1856, the number of patients received into the insane department was 74. Fifty had been discharged cured, 4 had died, and 5 remained at the latter date. Of 8 who were discharged improved, 6 recovered after leaving the hospital.

To meet the wants of the community in the western part of the State, it was decided, some months ago, to increase the accommodations for the insane by the construction of a separate building. The question arose whether that building should be placed in the city or in the country. After no inconsiderable deliberation, it was very wisely concluded that it should be in the country, and constructed upon the most approved plan of the present day. The whole sum of the appropriations by the Legislature, as above mentioned, has been reserved for disbursement upon the buildings, while a farm of 160 acres has been purchased by private contributions. As described by Dr. Joseph A. Reed, the physician to the department for the insane, the farm is "on the Monongahela River, nine miles from the city of Pittsburg, in a remarkably healthy neighbourhood, and surrounded by exhilarating scenery. It presents three large plateaux, extending back from the river, and rising from one to the other some fifty feet. The first is fine garden land; the second, containing some 40 acres, covered with forest-trees; the third, fine farming land. On the second, the building will be placed. Several large springs will furnish an abundant supply of excellent drinking and cooking water, while from the river any amount may be forced at comparatively small expense. The farm is accessible by railroad, river, or carriage."

12. We know of but five private establishments for the treatment of the insane in the United States. The oldest of these is that of Dr. Cutter, at Pepperell, Massachusetts. The late Dr. James Macdonald established a private institute at Murray Hill, New York City, about the year 1837, and some years afterwards removed it to Flushing, Long Island, where it is still continued under the title of Sanford Hall, and in charge of the Doctor's brother, General Allan Macdonald. It is one of the most complete and beautiful establishments of the kind in the world. Dr. Edward Jarvis has an establishment at Dorchester, Massachusetts; Dr. Edward Mead one near Cincinnati, Ohio; and Dr. George Cook one at Canandaigua, New York.

In conclusion, we present our readers with a tabular statement of the institutions for the insane now in operation in the United States, together with such of the more important information relating to them as we have been able to collect. No answers have been received from some of the superintendents to whom letters were addressed.

	Title.	Location.	Present superintendent.
U. S. INSTITUTION. District of Columbia . . .	Government Hospital for the Insane	Near Washington	Dr. Charles H. Nichols
STATE INSTITUTIONS.			
Maine . . . . .	Insane Hospital	Augusta	Dr. Henry M. Harlow
New Hampshire . . . .	Asylum for the Insane	Concord	Dr. John E. Tyler
Vermont . . . . .	Asylum for the Insane	Brattleboro'	Dr. Wm. H. Rockwell
Massachusetts . . . . .	Lunatic Hospital	Worcester	Dr. Merrick Bemis
do. . . . .	Lunatic Hospital	Taunton	Dr. George C. S. Choate
New York . . . . .	Lunatic Asylum	Utica	Dr. John P. Gray
New Jersey . . . . .	Lunatic Asylum	Trenton	Dr. H. A. Buttolph
Pennsylvania . . . . .	Lunatic Hospital	Harrisburg	Dr. John Curwen
Maryland . . . . .	Hospital for the Insane	Baltimore	Dr. John Fonerden
Virginia . . . . .	Western Lunatic Asylum	Staunton	Dr. Francis C. Stribling
do. . . . .	Eastern Lunatic Asylum	Williamsburg	Dr. John M. Galt
North Carolina . . . .	Insane Asylum	Raleigh	Dr. Edward C. Fisher
South Carolina . . . .	Lunatic Asylum	Columbia	Dr. J. W. Parker
Georgia . . . . .		Milledgeville	Dr. Thomas F. Green
Kentucky . . . . .	Eastern Lunatic Asylum	Lexington	Dr. W. S. Chipley
do. . . . .	Western Lunatic Asylum	Hopkinsville	Dr. Samuel Annan
Tennessee . . . . .	Hospital for the Insane	Near Nashville	Dr. W. A. Cheatham
Ohio . . . . .	Lunatic Asylum	Columbus	Dr. R. Hills
do. . . . .	Northern Lunatic Asylum	Newburg	Dr. R. C. Hopkins
do. . . . .	Southern Lunatic Asylum	Dayton	Dr. J. J. McIlhenny
Indiana . . . . .	Hospital for the Insane	Indianapolis	Dr. James S. Athon
Illinois . . . . .	Hospital for the Insane	Jacksonville	Dr. Andrew McFarland
Missouri . . . . .	Lunatic Asylum	Fulton	Dr. T. R. H. Smith
Mississippi . . . . .	Lunatic Asylum	Jackson	Dr. Wm. S. Langley
Louisiana . . . . .	Insane Asylum	Jackson	
California . . . . .	Insane Asylum	Stockton	Dr. R. K. Reid
CORPORATE INSTITUTIONS.			
Massachusetts . . . . .	McLean Asylum	Somerville	Dr. Chauncey Booth
Rhode Island . . . . .	Butler Hospital	Providence	Dr. Isaac Ray
Connecticut . . . . .	Retreat for the Insane	Hartford	Dr. John S. Butler
New York . . . . .	Bloomingdale Asylum	New York City	Dr. D. Tilden Brown
Pennsylvania . . . . .	Pennsylvania Hospital for the Insane	Philadelphia	Dr. Thos. S. Kirkbride
do. . . . .	Friends' Asylum	Philadelphia	Dr. J. H. Worthington
PAUPER INSTITUTIONS.			
King's County, N. Y. . .	Lunatic Asylum	Flatbush	Dr. Robert B. Baiseley, <i>Physician</i>
Hamilton County, Ohio .	Lunatic Asylum	Mill Creek	Dr. O. M. Langdon
Boston City . . . . .	Lunatic Asylum	South Boston	Dr. Clement A. Walker, <i>Physician</i>
New York City . . . . .	Lunatic Asylum	Blackwell's Island	Dr. M. H. Ranney
MIXED INSTITUTIONS.			
Pennsylvania . . . . .	Western Pa. Hospital	Pittsburg	Dr. J. A. Reed, <i>Physi-</i> <i>cian</i>
Maryland . . . . .	Mount Hope Institution	Baltimore	Dr. Wm. H. Stokes, <i>Visiting Physician</i>
PRIVATE ESTABLISHMENTS.			
Massachusetts . . . . .		Pepperell	Dr. N. Cutter
do. . . . .		Dorchester	Dr. Edward Jarvis
New York . . . . .	Sanford Hall	Flushing	Genl. A. Macdonald
do. . . . .	Brigham Hall	Canandaigua	Dr. George Cook
Ohio . . . . .	Retreat for the Insane	Near Cincinnati	Dr. Edward Mead

This table is intended chiefly as a historical record, and not as an exposition of the results of hospital treatment. Especially would we deprecate, in the name of justice, as well as of scientific truth, any attempt to judge of the merits of the respective institutions by a comparison of their statistics. Under the most advantageous circumstances, a just comparison is almost impossible; and, in this table, all the elements, besides the mere general results, which would render such a proceeding in the least justifiable, are wanting.

P. E.

When opened.	Farm: acres.	STATISTICS: FROM OPENING, IF NOT SPECIFIED.					
		Last date.	Admitted.	Discharged.	Cured.	Died.	Remain.
Jan. 15, 1855	190	To June 30, 1855	63	3	3	0	60
Oct. 14, 1840	115	To Nov. 30, 1855	1559	1404	631	193	155
Oct. 29, 1842	125	To June 1, 1856	1379	1225	613	128	154
Dec. 12, 1836	300	To Aug. 1, 1855	2393	1999	1127		394
Jan. 18, 1833	100	To Nov. 30, 1855	4962	4619	2284	553	336
April 7, 1854	133	To Nov. 30, 1855	497	235	106	62	262
Jan. 16, 1843	140	To Dec. 1, 1855	4588	4133	1917	543	455
May 15, 1848	111	To Dec. 31, 1855	896	663	338	113	233
Oct. 1, 1851	130	To Dec. 31, 1855	626	376	95	76	250
1828	198	From July 1, 1836, to Oct. 1, 1855	1338	960	516	295	388
Feb. 22, 1856	160						
Jan. 1, 1828	44	To Nov. 5, 1855	899	727	363	176	172
1824	40	To Oct. 1, 1854	1976	1782	731	795 <sup>1</sup>	194
Sept. 18, 1854	385	To Dec. 31, 1855	113	32	8	17	81
March 1, 1852	250	To Oct. 1, 1855	268	163	83	24	103 <sup>2</sup>
Nov. 30, 1838	57	To Nov. 30, 1855	2776	2560	1411	338	216
March 5, 1855		To Nov. 15, 1855	164	52	42	7	112
Sept. 1, 1855	50	To Nov. 15, 1855	59	11	4	0	48
Nov. 21, 1848	160	To Oct. 21, 1855	910	714	485	83	196
Nov. 3, 1851		To Dec. 1, 1854	404	238	148	27	166
Dec. 1, 1851	460	To Nov. 30, 1854	193	99	47	39	94
Jan. 8, 1855	140	To Dec. 31, 1855	70	19	7	5	51
Nov. 21, 1848	132	To Dec. 31, 1853	325	192	53	95	132
Oct. 8, 1853	100	From May 14, 1852, to Dec. 31, 1854	651 <sup>3</sup>	355	312	43	134
Oct. 16, 1818	33	To Dec. 31, 1855	4006	3814	1858	446	192
Dec. 1, 1847	115	To Dec. 31, 1855	719	582	231	132	137
April 1, 1824	77	To April 1, 1856	2961	2764	1463	308	197
June 10, 1821	41	From Jan. 1, 1845, to Dec. 31, 1855	1411 <sup>4</sup>	1284	610	211	127
Jan. 1, 1841	113	To Dec. 31, 1855	2752	2522	1336	292	230
May 15, 1817	62	From March 1, 1842, to March 1, 1856	555 <sup>5</sup>	489	235	67	66
Nov. 1, 1855							
Nov. 7, 1853		To June 4, 1855	322	161	71	35	161
June 10, 1839	20	From Jan. 1, 1847, to Dec. 31, 1855	4400 <sup>6</sup>	2654	1693	1173 <sup>7</sup>	573
March 13,		To March 31, 1856,	74	69	50	4	5
1842	18	To Dec. 31, 1855	1319				122

<sup>1</sup> Asiatic cholera has visited this asylum four times.<sup>2</sup> There was an old asylum, at Nashville, before this was established; but we have not its published records.<sup>3</sup> These statistics commenced before the asylum was opened, when the insane patients were treated in the general hospital.<sup>4</sup> Including 104 in the asylum, Dec. 31, 1844.<sup>5</sup> Including 58 in the asylum, March 1, 1842.<sup>6</sup> Including 383 in the asylum, Jan. 1, 1847.<sup>7</sup> Asiatic cholera in 1849 and 1854.

ART. XXIII.—*Obstetrics; the Science and the Art.* By CHARLES D. MEIGS, M. D., Professor of Midwifery and the Diseases of Women and Children in Jefferson Medical College at Philadelphia, etc. etc. etc. Third edition, revised. With one hundred and twenty-nine illustrations. 8vo. pp. 758. Philadelphia, 1856: Blanchard & Lea.

As a comprehensive, faithful, and able exponent of the theory and practice of obstetrics, the treatise of Dr. Meigs is not excelled by any of the numerous and excellent works, devoted to the same subject, which crowd the shelves of our medical libraries. From an intimate acquaintance with its pages the student will acquire an accurate knowledge of all that relates to parturition, whether it take place under circumstances where everything is favourable to its regular progress and ready and safe termination, or where, from any cause, relating to the foetus or to the mother, it is rendered tedious, or difficult, or impossible, without the intervention of the practitioner; the rules by which he is to be guided in the conduct of labour under all the varied circumstances in which it may occur, and with the principles upon which these rules are severally based. The whole communicated with a clearness and earnestness of manner that cannot fail to impress both the theory and the practice deeply and indelibly upon his mind. To its pages the practitioner, also, may resort with profit for instruction in questions of doubt and difficulty, certain to find inscribed upon them not only the fruits of the author's own extensive experience and careful study of the subject, but of all who have contributed to the improvement of the science and art of obstetrics down to the latest dates.

But while our commendation of that portion of the treatise of Dr. Meigs which is devoted strictly to an exposition of the doctrines and practice of midwifery is thus unqualified, we cannot allow the work to go forth without recording our dissent from the views advanced by the author in two, at least, of the chapters he has devoted to a consideration of the diseases of the puerperal state, and of the new-born infant. In this third edition we had really expected to find that the account given of puerperal fever would present important modifications, in accordance with the well-authenticated observations which have crowded in upon us recently in reference to the pathology and treatment of that disease, and of them adverse to the views heretofore entertained and enforced by Dr. Meigs. We must confess we were not a little disappointed to find a reiteration of the same doctrines in regard to the nature of puerperal fever, of the same directions for its treatment, as though they had the support of, instead of being repudiated by, all recent observations and experience. We are not only convinced of the inaccuracy of Dr. Meigs' views in respect to the pathology of puerperal fever, but we consider them dangerous as leading to a one-sided routine practice, which, in the larger number of instances, cannot fail to lead to the most disastrous results; they are the more dangerous, from the earnestness and confidence with which they are enforced, being calculated to induce the inexperienced to turn a deaf ear to the evidence by which their unsoundness is exposed.

The other chapter to which we allude is that on cyanosis neonatorum.

Dr. Meigs still insists that the cause of this affection is the patulous condition, after birth, of the foramen ovale, in consequence of which the orifice of the pulmonary artery retains its foetal diameter, and "the pulmonic ventricle continues in its state of partial *ante partum atelectasis*;" and he founds upon this theory of the production of cyanosis a particular plan of treatment; the placing the cyanosed child upon its right side, in such a position as to cause, as he supposes, the blood in the right auricle to press down the valve of Botalli upon and close the foramen ovale, thus preventing its direct passage into the left auricular cavity, while the right ventricle is enabled now to make a complete diastole, and, by its subsequent contraction, to drive the blood into the pulmonary artery and dilate the orifice of this vessel to a proper size.

We do not propose to enter, on the present occasion, into an examination of the validity of this explanation of the production and cure of cyanosis, nor to

deduce the facts and arguments by which it is controverted. It is rejected by nearly all the leading pathologists of the present day. The treatment proposed by Dr. Meigs, by itself considered, is unobjectionable. In all cases it will be found to give relief, the position of the body on the right side, with the head and trunk slightly elevated, being that best adapted to facilitate the circulation. To suppose, however, that, in cases of actual cyanosis, we can thus cure the disease is to imagine an impossibility. We have only to consult the records of morbid anatomy to be convinced that cyanosis is generally the result of such abnormal conditions of the heart or great bloodvessels as are altogether irremediable. It is true, Dr. Meigs would lead us to view the most frequent of these abnormal conditions as the result of the persistent patulous condition of the foramen, and that, to prevent their occurrence, it is only necessary to cause, as soon after birth as possible, by the mode he has indicated, the valve of Botalli so to apply itself over the foramen as to close the direct communication between the two auricles. But, to show the impossibility of this being the case, we have only to refer again to the facts revealed by morbid anatomy; these, indeed, would lead us to infer that the persistent open condition of the foramen ovale, in place of being the primary condition, is rather the result of the impediment which, in so large a number of cases, is presented to the free passage of the blood through the pulmonary artery in consequence of the abnormal condition of the latter vessel.

We would direct those of our readers who may be desirous of examining more fully the facts and observations bearing upon the pathology of cyanosis, to the very able paper by Dr. Moreton Stillé, to be found in this journal, 1844; to Dr. Chever's communication in the *London Medical and Physical Journal*, for March, 1847; to an essay by Dr. Craigie in the *Edinburgh Medical and Physical Journal*, for October, 1843; and to the second volume of the *Pathological Anatomy* of Professor Rokitsky.

D. F. C.

ART. XXIV.—*The Sunburnt Appearance of the Skin as an early Diagnostic Symptom of Supra-Renal Capsule Disease.* By ISAAC E. TAYLOR, M. D., Physician to Bellevue Hospital, New York. With Coloured Illustrations. Reprinted from the *New York Journal of Medicine*. 8vo. pp. 21: New York, 1856.

OUR entire ignorance of the physiological value of the supra-renal capsules—of the functions they perform in the animal economy during the state of health, has caused their diseased conditions to be, in a great measure, if not completely, overlooked in the investigations that have been so industriously made into the immediate causes of morbid phenomena. Recent observations have, however, given to the pathological states of these bodies an importance, which, by directing the attention of the inquiring physician to a more careful study of their lesions, and to the phenomena by which they are accompanied, may lead to a knowledge of their functions, the morbid causes to which they are subject, the part which disturbance or arrest of their normal action plays in the production of disease in other parts, and perchance to the means of prophylaxis, or of cure in cases in which they are liable to become diseased, or are actually the seat of disease.

The attention of the medical profession was first directed by Dr. Thomas Addison, of London, to a form of anæmia attended with a peculiar discoloration of the skin, and of so serious a character as to have proved fatal in every instance reported, and attended, in all the cases in which a post-mortem examination was made, by lesions varying in character and extent, of the supra-renal capsules. The observations of Dr. Addison were published in May, 1855. Others, confirmatory of these, were presented by Dr. Jonathan Hutchinson, in the *Medical Times and Gazette*, of London, 1855 and 1856; and we find, in *L'Union Médicale*, August 7, 1856, that the general accuracy of these observations has been recognized by M. Trousseau, of Paris.

In the work before us we have an able and most interesting monograph on this subject, in which the description of the morbid phenomena referred to, and the general conclusions in reference to their pathological value and bearing, are based upon a number of cases carefully studied throughout their course.

The discoloration of the skin, which is a leading and characteristic feature of the class of cases in question, is described by Dr. Addison, as pervading the entire surface of the body, but commonly most strongly marked on the face, neck, superior extremities, penis, scrotum, and in the flexures of the axilla, and around the navel. He represents it as of a dingy or smoky appearance, or of various tints or shades of deep amber or chocolate-brown; in one instance, the skin was so universally, and so deeply coloured that it might have been mistaken for that of a mulatto. In the very early period of the disorder, and when the supra-renal capsules are less extensively diseased, according to Dr. Addison, the discoloration may, doubtless, be so slight and equivocal as to render the source of the anæmic condition uncertain. Every tinge of yellow, or mere sallowness, throws, he adds, a still greater doubt over the true nature of the case—the more decided the discoloration partakes of the peculiar dingy or dark appearance, the stronger should be our impression of the capsular origin of the disorder. Dr. Hutchinson employs the term *bronze* to indicate the discoloration of the skin, Dr. Taylor believes that this will only apply to the more advanced cases; in the early stages of the disease, he has not been able to recognize its adaptation, and, even in the advanced cases, the analogy to the colour of the mulatto, or rather of a West Indian, seems to him more correct and just.

Dr. Taylor remarks, that on examining the cases of Dr. Addison, it appears the discoloration of the skin had existed for a length of time, and, in some, it was not recognized till after death, and that they were not, therefore, seen in the early stage of the discoloration and disease, and Dr. T. believes it will be shown that the dingy, smoky, or deep amber, or chestnut-brown, or mulatto appearance of the discoloration, becomes quite characteristic when the disease is of a chronic character.

In the histories of the cases given by Dr. T., he desires particularly to call attention to the discoloration of the skin, and the pigment on the lips, as he believes, in the early, and, in two cases, in the incipient stage of the disease.

The first of Dr. T.'s cases was that of a male, 22 years old; labourer; born in Ireland; single; a moderate drinker; his mother died of phthisis; other members of his family healthy. Had cough and spitting of blood three years previously; not troubled with cough much since. Has had enlargement and suppuration of lymphatic glands of neck. Had, shortly before admittance into hospital, an attack of intermittent fever. He died in the course of the sixth week after his admission, in a state of coma.

"The appearance of this patient, as to his physical constitution, presented a tuberculous diathesis; there was some emaciation. The expression of face dull, listless, and rather stupid; he answered questions slowly, hesitatingly, and would drawl out his words; his mind was feeble. The expression of eye was sickly, earthy, wanting the natural hue and expression. The conjunctiva oculi et palpebræ was pearly, anæmic, and contrasted markedly with the colour of his face. The discoloration, when first noticed, was of a light sunburnt appearance, of a *dirty* shade of yellow; and extended across the centre of the forehead and no higher, being a perfect line of demarkation, to the natural colour of the skin. The whole of the scalp was free. The sunburnt discoloration extended down the temples, along the side of the cheeks on both sides, around the lower portion of the ear, and then to the back of the neck, and engaged the whole neck as low as the half of it. The ears were free, and all the lower part of the scalp. In truth, he was a perfect representation of a man who had been exposed to the sun with his hat on, divested of the cravat, and with collar turned over, with only that part that could be exposed discolored. The shade and appearance of this colour could not be better marked; the posterior part of the neck, and the lateral sides of the cheeks and forehead were the darkest, as though it had been of a longer duration. The spots where the glands of the neck had suppurated, remained free. Every week the appear-

ance of the discoloration became of a more deep and sunburnt character. The upper and lower lips had, when first noticed, several small, darkish-red spots; three or four on each lip. These spots were on the outer edge of the lips, and became gradually darker. They appeared very different from the lips in ordinary anaemia or cachectic state, and induced me to feel a stronger conviction in the opinion I entertained of the nature of the disease. The back of the hands also presented the same appearance, which extended to the wrist; the inside was free. There was no albumen in the urine, though he had died in a state of coma, indicating the nervous system was strongly affected. The result of the autopsy verified the diagnosis. Both of the supra-renal capsules were found in a state of tuberculous degeneration. The left more so than the right. The left was much larger than natural, being of the size of half a large hen's egg. On cutting through the capsule, there was but a few lines of thickness of the cortical structure; it contained a solid and semifluid mass of a yellow colour. The whole medullary structure was gone. The right capsule was not so large, and two-thirds of the capsule consisted of concrete tuberculous matter, the rest being semifluid. Under the microscope, nothing was developed but what would appertain to tuberculous degeneration, as broken up cells, fatty matter, and granular particles. There was no original trace of the natural organ. The left capsule weighed four drachms."

The second case was in a male, 42 years old; married; born in England; a moderate drinker. Had no hereditary disease, nor any disturbance of health until about six months previous to his admission into the hospital, when he had what he termed 'sunstroke;' since then he complained of weakness and dizziness of head. Died in forty-one days after admission, in a state of coma.

"This case is one of the most interesting of this form of disease, having chronic disease of the kidney when he came into the hospital, which, in the course of a few weeks, terminated his existence. The post-mortem revealed a fatty degeneration of that organ to the eye and by the microscope. The discoloration of the skin commenced between two and three weeks previous to his death, taking its rise on the centre of the forehead, as if he had been exposed to the sun, and was in marked contrast at this early period, to his clear, white, and anæmic skin, particularly so, as he was quite bald. The pigment gradually extended itself from the forehead, on both sides of the face, down the cheeks to the side of the neck, avoiding the ears, to the posterior part of the neck. The lips at the juncture of the mucous membrane and the skin, began also to exhibit the light reddish line. In three weeks it had become like a perfect recent sunburnt colour, showing the rapidity with which it may manifest itself, its extent and locality. After death it faded in its colour so much that in twenty-four hours there was left but a light dirty yellowish, though quite characteristic, discoloration. From the investigation of the urine, with its light specific gravity, and the slight proportion of albumen, it was not expected he would survive long, and the kidney affection was the chief, if not the sole cause of his death. But it was exceedingly gratifying to perceive the pigment manifest itself, thus rendering strong the probability that the supra-renal capsules were beginning to be involved in disease which would hasten on his dissolution. This opinion was corroborated by the autopsy.

"Under the microscope nothing definite was discovered to throw further light on the subject, although corpuscles, irregular cells, small portions of anaphous matter, and some oil granules were also found, and there was but a trace of healthy tissue left, while the whole of the medullary structure was gone."

These two cases are the only ones in which Dr. T. has been enabled to verify the diagnosis by post-mortem examinations. The histories of two other cases remaining in the hospital are given, in which the peculiar discoloration of the skin is well marked. The foregoing are, however, sufficient to convey to our readers a tolerably correct idea—so far as mere description can impart it—of its characteristics. The coloured lithographic illustrations, drawn from ambrotype likenesses of the four patients, picture it in the clearest manner.

Dr. T. remarks that his representations of the discoloration of the skin in these cases, differ somewhat from those given by Dr. Addison. This difference,

he adds, is still more apparent, when it is considered that he had the opportunity of observing the pigment deposit itself, in the second case, whilst under treatment for renal disease, and of noticing its commencement on the forehead, with a clear and distinctly marked line, and on the lips, and in another case which has only existed five weeks, and noticed by him one week before he came into the hospital, and in the first case, for three or four months previous to his admission, and in still another case; all of which presented the same sunburnt appearance, commencing from a light shade of tanning, and progressing to a darker hue. In the first case described, Dr. T. observes, the discoloration could not have occurred from the effects of the sun, as the patient had not been exposed to the sun for three or four months, and had not noticed the change of his skin till his attention was called to it, and from the length of time he was in the hospital, if that had been the cause, it should have become paler. Again: in the second case we were enabled to justify the opinion that the discoloration pointed to both capsules as the seat of the disease—for in all the kidney affections Dr. T. has seen, he never noticed this discoloration of the skin, showing that the capsules had become involved before death.

In the representations of Dr. Addison, there is no line of separation visible on the forehead; in his cases the pigment embraces the whole of the scalp and ears. This was not the case in the patient at the New York Hospital, in which the line of demarcation was very evident, and also the pigment on the lips, although the whole body is tinged of a mulatto colour. The general history of the cases corresponds with those of Dr. Addison, except the appearance of the skin, and the emaciated condition of all the patients, except one. Dr. Addison's plates represent a dirty brown or mulatto or West Indian colour, and all his cases have the scalp discolored except one, which appears to have been free, or not continued to the face by the lithographer, as the whole face is not given.

Referring to Dr. Hutchinson's comparison of the discoloration to that of a bronzed statue from which the gloss has been rubbed off, Dr. T. thinks that if this appearance of the skin were to be considered as that peculiar to the disease throughout its course, it would cause it to be overlooked in its early stage.

"From the cases reported by Dr. Addison and others, and my own, it will be remarked," says Dr. T., "that this affection may spring up whilst another disease is progressing, and that it may, and generally does exist as a disease by itself, that the disease, judging from the number of cases that have come under my observation in the course of two months' service in the hospital, cannot be very rare; that it must have existed in many cases which have never been recognized; that the discoloration may take place in rather a rapid manner, when the disease may be of an acute character, and that the discoloration may be gradual in its appearance, and become extensive when the disease is of a chronic character, and exist for, it may be, years, owing to the peculiar diathesis of the patient, whether of the tuberculous, or cancerous, or fibrous, as nearly allied to the rheumatic; that it requires a longer time for the development of the pigment when it becomes of the mulatto or West Indian hue, and more universal, while in the early stage it is like a person who is sunburnt; that the result of all the cases have proceeded to a fatal issue."

Including those of Dr. T., thirty-seven cases have been recorded; of these, eighteen were subjected to a post-mortem examination. In fourteen examinations, both supra-renal capsules were diseased, and in four, only one. In no instance, therefore, examined up to this period, in which the peculiar discoloration of the skin alluded to has been present was disease of the capsules absent. Dr. T. remarks that "not a single case has been noticed where these bodies were diseased, and the discoloration of the skin did not exist also." This we believe does not, however, correspond with the experience of Dr. Addison, who speaks of cases of individuals, who had presented no symptoms of anæmia or discoloration, dying of acute and chronic diseases, in whom decided lesions of the supra-renal capsules were detected.

From the morbid anatomy of the cases recorded, it appears that the supra-renal capsules undergo the same process of disease from an inflammatory action, through its regular changes, suppuration, and induration, and also

through the various organic changes incident to lymphatic and other glands, such as tubercle, cancer, cystic degeneration, and, as supposed by one or two authors lately, having a form of degeneration peculiar to themselves. From the evidence before us of eighteen post-mortem examinations, there have been more instances of tuberculous degeneration than of any other, and, as a general rule, Dr. T. is inclined to believe that when not of an acute nature, this result will characterize, most frequently, that form of degeneration, as this form of cachexia prevails more extensively than any other, except the cancerous, for the history, progress, and termination of the disease, show a cachectic condition and not anæmic, as described by Dr. Addison. On account of their vascularity, hemorrhage not unfrequently occurs. But it is rare to see a case in the inflammatory state, according to Rokitsansky, as, in consequence of inflammation they become adherent to the kidneys.

"Respecting the diagnosis of the discoloration of the skin under consideration, there might be some difficulty," says Dr. T., "in arriving at a correct decision in the instances of persons who have been sunburnt. But in cases of this nature, the ears and the hair have undergone some change—which does not, in this disease, exist, in its early stages—as we have seen in all the instances I have recorded, and as many medical gentlemen have also observed, where the sunburnt appearance from nature exists. The general health is good, and the nervous system is not impaired; the lips free from the pigment which all the patients in this affection have. If the pigment on the face does not extend, or grow much darker, though otherwise having the characteristic marks, it is possible that only one of the capsules may be affected, and thus it may remain in this form for a great length of time, and the disease may be prolonged even to two or more years.

"In *pityriasis versicolor* the patches are smaller, not as diffused; show themselves on the breast, shoulders, partly on the neck, and existing sometimes slightly on the face—not unlike the freckles or discoloration in females during gestation—itches at times, and has also, sometimes, a slight furfuraceous scale; and, lastly, the presence of a microscopic fungus, similar in structure to the parasite of *tenia favosa*, and to other mycodermatous growths, of which discovery has been made by Eichstadt, and where this is sought for and found no doubt could exist; the history of the case must here be taken into consideration. Another source of difficulty might seem to be the dirty, sallow appearance of the skin in miasmatic, and in various forms of malignant cachectic disease, but to the early stage there can be no comparison; and, in the advanced stage, the colour is so marked that it would not admit of error."

In one of the cases reported by Dr. T., a microscopic examination of the skin was made by Dr. J. C. Dalton, Jr., from which it appears that the colouring matter was deposited in a granular form, and could not be distinguished from that of the mulatto, and it is believed that the colour of the mulatto is dependent upon a special arrangement in the organization of a certain tissue of the skin, that pigment-cells of a dark colour are secreted in the form of fine granular matter, instead of being uniformly diffused through the tissues.

That some connection exists between the discoloration of the skin in question and disease of the supra-renal capsules, would appear to be an inevitable conclusion from the fact that, in every instance in which a post-mortem examination has been made, the two have been found coincident. But, whether such a conclusion shall become finally established by the result of a more extended series of observations it is difficult to say. It is possible that the discoloration of the skin may be an effect of the accompanying lesions of the supra-renal capsules, but still it is far from being improbable, that the first may be shown by further researches to be a phenomenon merely coincident or of simultaneous occurrence with the latter, without being actually produced by them. We owe much, in whatever way this question may be finally settled, to Dr. Addison, for having directed the attention of the profession to the fact of the invariable coincidence of a peculiar discoloration of the skin with disease of the supra-renal capsule, and to Dr. Taylor for his valuable contribution on the same subject, especially for his very clear delineation of the characteristics of

that discoloration on its first occurrence, as "an early diagnostic symptom of disease of the capsules."

An important question presents itself: Does the invariable coincidence of a special change in the colour of the skin with lesions of the supra-renal capsules, afford us any clue to an acquaintance with the functions performed by the latter?

At the present day, observes Dr. T., the function of these organs is not recognized, nor has any light been thrown on their physiology. Kölliker, who has given more attention to them than any other physiologist of the present day, believes, it is true, that their *cortical* and *medullary* substance are *functionally* distinct; that while the former may provisionally be placed with the so termed "blood vascular organs," and a relation to secretion assigned to it, while the medullary portion, on account of its extremely abundant supply of nerves, must be regarded as an apparatus appertaining to the nervous system, in which the cellular elements and the nervous plexus either exert the same reciprocal action as they do in the gray substance, or stand in the relation as yet wholly unascertained towards each other. Leydig joins with Bergman in believing that these capsules are closely related to the ganglia of the sympathetic nerves, as the pituitary body are to the brain.

"In connection," Dr. T. goes on to say, "with the present subject of the pigment which we notice existing on the skin of patients labouring under disease of the capsules, and the great impression made on the nervous system, as we perceive through the marked impairment of the physical constitution, the weakness and feebleness of the powers of the body, the general lassitude that exists, the feeble and slow action of mind, the stupid manner and expression of thought, the unearthly and sickly aspect of the eye, the mode of death, either by exhaustion, as in cases of advanced anæmia, or through the cerebro-spinal axis, or by coma, we are disposed to entertain the belief or opinion, that if the suggestion of Professor Kölliker be true "that the cortical and medullary substances are physiologically distinct," it may or will, in the course of time, cast much light on the subject, and aid in solving the principal feature of the case, why and how this pigment is deposited, and its relation to the supra-renal capsules. Now, if, as we perceive in this disease, the nervous system is so much involved, the body and mind both impaired and depressed, when the affection has existed for a few months, and the medullary substance is considered as being nearly allied in its function and relation to the nervous tissue, I would suggest this part as being physiologically distinct from the cortical, and to be the '*fons et origo*' of this depressed and impaired state of the nervous system. On the other hand, as the cortical substance is believed to belong to the 'blood vascular organs,' may this not be the '*fons et origo*' of the pigment we see so distinctly evident on the skin? It seems to give colour to the appearance of a tendency to an elucidation of the difficulties involved in the relation the discoloration bears to the disease of the supra-renal capsules. But we leave this point for further investigation, though the idea may be entertained, as the physiology of the organs is considered not yet determined, and their function, according to the latest authority on the subject, unknown. From the facts, therefore, lately presented to our attention by Dr. Addison, and which have in so many instances thus far been verified, that there appears to be a relation or connection between the discoloration of the skin and the capsules, the thought presents itself to my mind, whether it may not be possible that a still further application of the subject in the discoloration of the skin, which we see in gestation, on the face, hands, around the nipple, the abdominal line, navel, vulva, etc. etc., may not have some connection with these bodies, though of a temporary nature; I think the suggestion has some bearing, when we come to reflect on the connection or relation pregnancy has with the kidneys, producing in them a temporary congestion, and to such an extent that albumen may be deposited in the urine, and produce convulsions, as is sometimes the case. Now, this temporary congestion of the kidney during gestation, may exist as early as the first week, and, therefore, proceed not from mechanical pressure on the principal arterial and venous vessels, as is generally supposed. An instance of this nature has lately come under my obser-

vation, where the skin had continued to be deprived of its natural function for two months, and albumen was discovered to exist, though the lady was only advanced two months and one week, and, while under treatment, in the course of two weeks ceased to exist, and still continues free from it. If, therefore, the kidneys become congested during gestation, even in its very early stage, may it not be possible, from the contiguity of the supra-renal capsules, they may become involved, or may they not, themselves, become slightly affected, as we perceive other organs do in this state; sufficiently so to allow the discoloration incident to pregnancy, to exhibit itself? It seems to me there is a feasibility in the suggestion that may admit of further illustration from the remarks we have made; and from the investigations of Meckel on the mammalia, and his observations on the human subject, and the case of Otto and others, showing the relation they both bear to the genital and uterine organs; but the further, and, as I conceive, the more valuable suggestions of Kölliker, respecting the physiological action of the two portions of these bodies being distinct, and which we are disposed to think may, in future, tend much to explain the reason how this pigment is deposited, and its connection to the supra-renal capsules. Now, if this should prove to be the reason why this discoloration exists, and in gestation also, may it not explain the reason why the nervous system is affected when albumen is discovered in the urine, and that instead, as some have believed, and which I have not yet been disposed to be fully convinced of, that instead of urea being the cause of the convulsions, it may be possible that the medullary part of the supra-renal capsule is involved?"

We consider the publication of Dr. Taylor as one of deep interest—furnishing a valuable addition to our stock of pathological knowledge. He has, unfortunately, clothed his observations in a style often so clumsy and obscure, as to render it, occasionally, difficult to arrive at his true meaning.

D. F. C.

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ART. XXV.—*Essays on the Physiology of the Nervous System, with an Appendix on Hydrophobia.* By BENJAMIN HASKELL, M. D., of Rockport, Mass. 8vo. pp. 88. Gloucester, Mass., 1856.

WHAT is life? Is it the mere result of organization; a power generated by the arrangement of molecules, of a certain chemical constitution, in a particular form and manner? Or does it exist prior to and independent of the organism which is created, developed, sustained, and governed by it? For the solution of this question, we in vain interrogate the physiologist; he has been unable, as yet, with all his multiplied and varied experiments, and his most profound researches, to throw upon it the slightest amount of light. Nor has he been any more successful in his attempts to elucidate the nature of nerve-force, of which so much use has been made, of late years, in accounting for the phenomena of life, as they occur, whether in the normal condition, or in a state of disease. Is this force identical with the living power or principle, or is it simply the agent through which that power or principle builds up organic structures, prompts, directs, and controls their actions, and thus produces all the functions of the living system? Who among us can give a satisfactory reply?

That the nerves perform a prominent and important office in the animal economy is indisputable; but in regard to what that office is, and how executed, we as yet know but little, if anything. We may theorize, and attempt to support our theories by a long array of apparent facts deduced from experiments and observations, but still we have in candour to confess that our actual knowledge in relation to the subject is limited and uncertain.

The doctrine now generally acknowledged by physiologists as the one based upon the most conclusive evidence is, that all mental affections, all active vital phenomena, are inherent in and dependent on the specific vital endowment of nerves.

"It is by virtue of a specific vital endowment of the optic nerve," we are taught, "that, when light is impressed on the retina, we are affected with the sensation of colour; by a similar endowment of the auditory nerve, when the vibrations of the air reach the internal ear, we are affected with the sensations of sound; another of the olfactory, to which we owe the sensations of odour; a fourth endowment of the gustatory, to which we owe the sensations of taste; a fifth, imparted to the nerves distributed to the skin and the posterior portion of the spinal marrow, gives the sensations of touch. The nerves that go to the muscles and the anterior portion of the spinal marrow have a motor endowment, of which the muscles are contracted, while the central portion has its reflex endowment. The power of breathing and the power of swallowing are inherent properties of the medulla oblongata. And as all these sensations of sight, hearing, taste, &c., are as much affections of mind as thoughts, emotions, and passions, and since no connection between the structure or vital actions of the nerves, and these sensations can be traced, or even conceived, the mechanical relations in which indeed they differ, being such as are accommodated to the physical causes acting upon them from without, it is perfectly consistent and legitimate to transpose this reasoning to the brain, and the mind in its higher faculties. The brain being a huge congeries of nerves of the same character as those of the superficies, any number of vital endowments may be predicated of it; and as the brain is not directly operated on by external or mechanical causes, there is no need of a mechanical division into parts distinct to the senses, as in the former case, in order that the analogy may hold. Not merely, then, are sensation, thought, volition, judgment, memory, imagination, with the passions and propensities, referable to vital powers or endowments of parts of the brain, but all the phrenological faculties, with their craniological organs, coupled with all the additions that the phreno-mesmerizers have made, are perfectly consistent with this philosophy.

"A moment's reflection," it is remarked by Dr. Haskell, "must satisfy any one that this doctrine is neither more nor less than materialism. If all the mental affections, from sensation up to thought (and there is no stopping point from the admission of one to the admission of the whole), are dependent on properties of nerves or of the brain, to suppose the existence of mind, soul, or spiritual principle, capable of sensation, feeling, or thought, is superfluous. We have no use for it in connection with the body, nor can we conceive of its enduring after death. When the nerves and brain crumble to dust, those vital endowments, dependent on their organizations, disappear along with them."

This doctrine Dr. H. has undertaken to disprove, and to substitute in its place a view of the nature and office of the nervous system in the human body, in which it is maintained that the supposed vital endowments of nerves are but another name for mental powers or activities associated with the physical activities of nerves. In other words, that the phenomena of life are the direct product of the mental powers, in obedience to the calls made upon those powers through the nerves; that these mental powers are diffused throughout the organism, which owes to them its origin and maintenance; and that to them the nerves serve merely as media for the communication of sensations, by which those powers are called into specific action, in accordance with the character of the sensations transmitted to them.

In the essay before us, Dr. H. has endeavoured to show that the received doctrine is false, inasmuch as—

"1. It is opposed to the general analogy of nature.

"2. It is opposed to the analogy of the other organs and organic systems in the body.

"3. It is contradicted by the structure of the nervous system, by the mechanical relations of its several parts to each other and to other organs, and by the nature of the causes operating physiologically to excite its functional activity, or pathologically to disturb it.

"4. It violates the law of proportion between the size of the nervous centres and the complexity of their functions, by assigning very complicated functions, in higher animals, to parts in which the same size is preserved as in the corre-

sponding parts of lower animals, in which the analogous function is extremely simple.

"5. In order to preserve its consistency, it denies to the invertebrated class of animals mental qualities which they most certainly possess. Thus Carpenter, while he allows intelligence to beasts, birds, and fishes, denies it to ants, bees, and spiders, because they have no brain.

"6. The persistence of a function after the destruction of the organ on whose vital endowment that function depended, as the continuance of the power of voluntary motion after the destruction of the whole anterior part of the spinal marrow—a fact admitted, and of a positive character—is a decided refutation of the whole theory.

"7. The mechanism of voluntary motion which it sets forth is absurd.

"8. The distribution it makes of the sensitive properties throughout the nerves is unphilosophical.

"9. It fails to account for *all* the phenomena which take place in the human body, and which are usually referred to the nervous system; such events as shock, sudden loss of vitality, and many of the phenomena of sympathy, remaining unaccounted for by it.

"10. The inconsistencies and contradictions of those who undertake to investigate and fix these vital endowments of nerves and nervous centres by means of physiological experiments and pathological observations are such as could not take place, did they possess the true key to the explanation of the facts which they witness.

"11. A comparison of the phenomena of association with those of instinct will show that the apparent fixedness of the sensibilities of the specific and other nerves can be explained as well by regarding them as mental faculties instinctively associated with physical excitements of nerves, as by supposing them due to inherent properties of the nerves themselves; and if so, the supposition of the existence of such properties is a gratuitous assumption.

"12. With regard to the well-known fact that when the cut end of a motor nerve, so called, is irritated, the muscle with which it is connected contracts—by far the strongest argument in favour of the doctrine of vital endowments—if we adopt a view of the nature of the union of the mind with the body which has been held by many of the most distinguished ancient as well as modern philosophers, viz: 'that the mind is all in the whole body, and all in every of its parts,' instead of locating it in the brain or in any other part, we can then conceive of a mental act intervening between the excitement of the cut end of the nerve and the contraction of the connected muscle, on which, and not on any property of the nerve, the effect is due.

"13. Finally, of those facts which have loosely been held to prove that the brain is the organ of the mind—such as the correspondence between the size of the brain and the intellect of the species or of the individual; the sense of fatigue in the head that follows long-continued exercise of the mind; delirium attending an excited condition of the nervous system; impairment of the memory in disease of the brain; loss of the powers of sensation, volition, and consciousness in concussion and compression of the brain—they only serve to show a connection, perhaps fortuitous, between the functional activity of the brain and the exercise of the mind. Sensation and volitional guidance of the contractions of the muscles are both intellectual operations; and as the activity of the brain is necessary to those, so it becomes associated with, and is favourable to, the activity of all the intellectual faculties."

The foregoing objections are enforced and illustrated in the course of the three essays of which the volume before us is composed, often with great acuteness. The objections of Dr. H. to the commonly received doctrines of the physiology of the nerves are, in general, of far greater force than his arguments in support of his own peculiar views are conclusive. In relation to the latter, there are many points he would have us take as proved from his simple statement of them. The truth of them all is based upon the plea that they afford a more clear and ready explanation of the action and functions of the nervous system than the doctrines in the place of which they are offered, rather than upon any attempt he has made to demonstrate their absolute truth.

It would lead us too far, and demand too much space, to follow Dr. H. in his exposition of the various errors, contradictions, and inconsistencies into which he finds the most ingenious minds have been led by adopting and following out the prevailing theory of the vital endowments of nerves, and his attempt to prove that the doctrine which he has proposed, while it accounts satisfactorily for every fact which the former does, explains, in addition, many which that does not reach, besides others which are in direct contradiction to it.

His examination of the received theory of nervous physiology, and the entire chain of reasoning adduced by him in support of his own views, are deserving of consideration; they are marked often by a degree of acuteness which, though not sufficient perhaps to enforce our acceptance of the theory he would build up, cannot fail, nevertheless, to shake in some degree the implicit faith reposed in the views of nervous action and function taught by the leading physiologists of our own and other countries.

The doctrine advanced by Dr. H. is but a modification, and perhaps improvement, of some of the more ancient theories invented to account for the vital endowments and phenomena of living organized matter. All that is original with him is the attempt to connect the old doctrine with certain known facts in relation to the anatomical peculiarities of the nervous system for which we have been mainly indebted to modern investigations.

It must be admitted that the theory of Dr. H. accounts very readily for the production of all the actions and functions of the animal organism, and relieves us of many of the difficulties by which the explanation of certain of the actions and functions is surrounded upon the assumption of the vital endowment of nerves; in other words, that every act of the living tissues and organs, if not the direct result of specific nerve influence, is so controlled by such influence as to derive from it its efficiency in completing the chain of vital actions. Consistent, however, and convenient as is the theory in question, it is, after all, based upon nothing more substantial than pure hypothesis. It is simply the expression, in different words, of the assumed position that living organs act in a determinate manner, spontaneously, by virtue of their inherent vitality in connection with their physical structure, when called into action by certain impulses communicated to them through the medium of the nerves as mere conductors of impulses or impressions. This explanation of vital phenomena and function may remove some of the difficulties with which our present views of these phenomena and function are beset, but it removes them only by the arbitrary assumption of a hypothesis, the truth of which is unsupported by other evidence, unless such as may be supposed to result from its convenience.

It is true that, when we take the diagram presented by Dr. H. on page 72 of his publication, with his explanation of the manner in which by it nerve-agency is demonstrated, all appears plain and satisfactory; but then we are to recollect that this very diagram is a mere creature of the imagination; its accuracy as an exponent of a presumed nervous circle, as it exists in the living body, still remains to be proved.

We are not displeased that the essays before us have been written and published, and would invite for them a candid perusal. They throughout present much, in reference to the subject of which they treat, of an eminently suggestive character, and may perchance offer a clue which, carefully and cautiously followed out, shall lead to a correct theory of the office of the entire nervous system. At present, we are unprepared to construct such a theory. We have still to wait patiently; to collect, verify, and compare carefully the facts demanded for the accomplishment of the work; and, step by step, as materials are supplied us, endeavour to lay for it a broad and stable foundation. Truth can rarely be attained by adopting first an hypothesis, and then labouring to cause apparently discordant facts, and the conflicting conclusions to which these have led, to conform to it.

In the appendix, Dr. H. has furnished us with some remarks on the pathology and treatment of hydrophobia. He considers the disease in the human subject to result from the insertion, by the bite of a rabid animal, of a specific virus, which, after a period of incubation, often of considerable duration, gives rise to an irritation or inflammation of the part in which it has been inserted, followed

more or less speedily by inflammation of the posterior fauces and larynx, which in its turn is succeeded by inflammation of the spinal cord, especially that portion of it where the nerves of deglutition and respiration terminate. He would, therefore suggest to physicians who may be called upon to treat hydrophobia, that "it is a disease of a mixed local and general nature, having two foci of inflammation and constitutional irritation, a primary and a secondary one; and that, while the constitutional symptoms should not be neglected, the main hope of arresting its dreadful fatality consists in applying remedies to these seats of inflammation; and he would further suggest, from the known efficacy of nitrate of silver in various diseases"—as an abortive agent—"that its application, in a strong solution, to the whole surface of the pharynx, fauces, and mouth, as far as practicable, at an early period—that of commencing spasm—affords a hope of successful, while it can be productive of no injurious, results."

This, with tonics, quinia in large doses, internally; laudanum, in injections, in such doses and at such intervals as to keep the patient in a state approaching to narcotism; tobacco, in the form of smoke, by the rectum; an opium, belladonna, or snuff plaster to the throat, or nape of the neck, with light nourishment from time to time, if the disease is protracted, constitutes the treatment recommended by Dr. H.—hypothetically, however, inasmuch as he has not met with a case of the disease.

D. F. C.

ART. XXVI.—*The Practical Anatomist; or the Student's Guide in the Dissecting-Room.* By J. M. ALLEN, M. D., late Professor of Anatomy in the Medical Department of Pennsylvania College, Fellow of the College of Physicians, Member of the Academy of Natural Sciences, &c., with two hundred and sixty-six illustrations. Philadelphia: Blanchard & Lea, 1856.

"Segnius irritant animos demissa per aurem,  
Quam quæ sunt oculis subjecta fidelibus."

To no department of our science are these oft quoted lines of the Sabine bard more applicable than to that of anatomy. A merely didactic description of the intricate and varied structure of the human organism can leave but a faint impression on the mind of the pupil, while in many instances it altogether fails to convey correct ideas of what is attempted to be taught. Hence the necessity of positive labour in the dissecting-room, under the supervision of intelligent demonstrators whose special devotion to its study has made the subject in all its details familiar to them.

But here, and still more when deprived of this supervision, text-books are indispensable, and among the most valuable of these we scarcely need mention the Dublin Dissector, which for so many years has justly commanded the approbation of the profession.

To write a book, however, which, while it shall avoid much of the cumbrous detail of a complete system of anatomy, shall yet contain all that is necessary for the dissector, requires no little tact and judgment. Such we believe to have been the successful endeavour of the author of the work before us. His book is a manual of about six hundred pages, printed in clear type and in a convenient form.

A few pages are occupied with some judicious preliminary remarks, after which the subject matter is at once entered on, beginning, as is usual, with the dissection of the head and neck. The descriptions, so far as we have examined, appear to us to be conveyed in clear, concise, and forcible language, well suited to the wants of the learner, while the numerous illustrations will at once enable him to localize in the actual subject the parts, &c., described in the context.

We have been particularly pleased with section 7th, which contains a description of the dissection of the eyeball, the text and illustrations of which are very lucid. So too with the description of the liver and its appendages; the muscles of the perineum, &c. &c.

As we have intimated, the work abounds in illustrations. Many of these, it is true, are not new, a fact which is frankly mentioned by the author, who states in his preface that the publishers gave him "*carte blanche* to select from the whole number of drawings contained in the various works published by them." If the illustrations consequently manifest their diversified origin, the want of uniformity thus resulting is more than compensated for by the increased practical value so many illustrations must give to the book.

As a guide to the dissector, whether he be the pupil in his first year's course, or the practitioner seeking to refresh his knowledge of anatomy, this volume will be found to be of much valuable assistance.

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ART. XXVII.—*An Outline of Medical Chemistry for the use of Students.* By B. HOWARD RAND, M. D., Professor of Chemistry in the Philadelphia College of Medicine. Philadelphia: Lindsay & Blakiston, 1855.

*An Introduction to Practical Chemistry, including Analysis.* By JOHN E. BOWMAN, F. C. S., Professor of Practical Chemistry in King's College, London, &c. Second American from the second and revised London edition. Philadelphia: Blanchard & Lea, 1856.

*A Practical Handbook of Medical Chemistry.* By JOHN E. BOWMAN, F. C. S., Professor of Practical Chemistry in King's College, London, &c. Second American from the third and revised London edition, with illustrations. Philadelphia: Blanchard & Lea, 1855.

THE increasing attention to chemistry and the constant contributions of new facts and improved modes of investigation in the inorganic and organic portions, together with the different views taken as to the best methods of communicating to others the principles and practices of the science, leads to the production of new, and the frequent revision of former editions of less recent publications. The above works, though differing in character and object, have been placed together as all relating to the same general subjects.

The first of these works is intended as an outline of general chemistry and its application to medicine. It has been the view of the author to give all the prominent facts of the science, as far as necessary to the student, in following a course of lectures on this subject. With this view the language is very succinct, and detail is avoided except where officinal preparations are noticed. Thus constructed the book becomes an aid to a course of lectures, or as a means of reviving knowledge previously attained, the rapid survey precluding any detail, which is left to the filling up of the outline, by a systematic course of instruction. In accomplishing this, two difficulties lie in the way: one, clearness being sacrificed to brevity, and the other, by omissions of words rendering the statements incorrect either in reality or appearance. The former has in a great measure been avoided, but in the latter the success has not been so great. Instances of this may be adduced in the preparation of German oil of vitriol, where, previously exposed for some time to air, is required, and of the latter, where speaking of muriatic acid gas, it is said "By pressure condensed into a liquid; specific gravity 1.27;" where, if the one sentence had been divided into two, the student would not have been left in doubt whether the weight applied to the liquid formed by condensation or the gas itself. A glossary is appended which will be very useful to the beginner, who frequently finds it difficult to remember words to which his ear is not accustomed, unless the precise meaning is taken in at the same time. These oversights are, however, but few, and can be easily corrected in the next edition, when also an index is required to facilitate reference when it is required to revive the knowledge on any particular point.

The latter two are new editions of works intended to convey instruction of a practical character; the instruments, their mode of construction, and the details of their use in these investigations, being described and illustrated so as to be

adapted to guide the student in the commencement of his career of study. We have heretofore expressed our opinion as favourable to the general end in view in the selection of apparatus of the most simple character, and the clear directions for their use, and it is now only necessary to allude to such improvements as may be presented in the editions now offered. The Introduction to Practical Chemistry is well arranged, and as full in its details as can generally be desired, and hence presents nothing of novelty in these respects. But investigations in organic products are constantly developing some new, or rendering more prominent some hitherto not sufficiently noticed facts, and more direct and simple methods of proceeding are devised, consequently the Practical Handbook of Medical Chemistry should contain such recent additions to organic chemistry as are embraced in the scope of the work. Of these Maumené's test for sugar is given under morbid urine. This, at the same time that it is very delicate, is very easy to perform, and the reagent, though not usually to be met with in the shops, is readily prepared, and being liable to but little change, may be kept on hand for general use, is a desirable addition to the means already attainable for the same end. To the means of investigating the changes in the composition of urine, that proposed by Liebig to ascertain the amount of urea present in any portion of that fluid by means of the nitrate of mercury, with which it forms a nearly insoluble compound, is one of much practical value in the hands of the physician, after he has familiarized himself with the mode of procedure by a few preliminary trials. To facilitate its use, minute details are given of the method of preparing the different solutions used, the apparatus necessary, and the mode of procedure, and the precautions necessary for an accurate result. With these as the principal additions, the work has been brought up to the present state of the science, and continues to deserve the same favour that it has previously received.

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ART. XXVIII.—*Sea-Sickness: its Cause, Nature, Symptoms, and Treatment, derived from Experience and Strict Observation*. By M<sup>r</sup>. NELKEN, Doctor Medicine of the Faculty of Medicine in Paris, France, of the Faculty of Medicine in Wurzburg, Bavaria, and Resident Surgeon in the New York State Hospital, Ward's Island. 8vo. pp. 32. New York, 1856: Stringer & Townsend.

ALTHOUGH to those who "go down upon the sea in ships," the sickness produced by the motion of the vessel is a source always of great annoyance and generally of no trifling suffering, it has unfortunately attracted but little attention from the medical profession. Few have attempted a careful investigation of its true character and immediate cause. This has arisen, no doubt, from the fact that sea-sickness is a troublesome rather than a dangerous disease, and one most commonly of only temporary duration, and which ceases spontaneously upon the removal of its exciting cause.

It is true, we have been favoured with various speculations in explanation of the manner in which sea-sickness is produced. It has been referred to a sympathy between the brain and peripheral nerves, to an irritation of the optic nerves, caused by the apparent vacillatory motion of everything around the vessel, to a sanguine congestion of the brain, produced by the derangement of the centre of gravity during the pitching forward of the vessel, to a sanguine depletion of the brain resulting from a centrifugal force called into action within the bloodvessels, in consequence of the oscillatory motion of the ship, and to a miasmatic intoxication. Dr. Darwin referred the production of sea-sickness to a disturbance of the brain consequent upon the unusual impression produced upon the vision by the movements of the vessel, which opinion is adopted by Dr. E. Miller, of New York, to whom we are indebted for a very excellent monograph upon the subject; he extended the explanation so as to embrace the sense

of touch as well as that of sight. Good considers sea-sickness to be produced by a disturbance of the sensorial function, caused by the direct impression made upon the brain by the motion of a vessel at sea. Vertigo, sickness of stomach, and vomiting, are the most common effects of concussion of the brain, or even of any slighter motion to which the head has been unaccustomed, as that of moving it rapidly from shoulder to shoulder in a half rotatory direction; from the same cause results the vertigo and distressing nausea and vomiting induced by whirling the body around on its own axis, by running, or by riding a horse round a small circle, by the action of swinging or of riding backward in a carriage, etc.

As little satisfactory are the views that have been advanced in respect to the proper management of sea-sickness. Emetics, purgatives, antacids, aromatics, opiates, and stimulants, have all been in turn recommended and condemned.

It was, therefore, with strong hopes of meeting with a more complete and satisfactory account of the immediate cause and true pathological character of the disease, and of the best mode of treating it, that we commenced the perusal of the essay of Dr. Nelken. As surgeon on board a ship, in its passage from London to New York, of seven weeks' duration, with five hundred and sixty passengers, of almost every age and of both sexes on board; among whom, in consequence of the rough and stormy weather they encountered, there prevailed much sea-sickness; the author had ample opportunity "to investigate the disease closely and minutely." From the commencement of the voyage his attention, he informs us, was directed to all that was going on within their little sphere, keeping a watchful eye upon each patient, and observing and recording daily each symptom and incident having reference to the disease in question. "Pre-possessed with no hypothetical theory on the subject, he confined his study to mere facts, keeping free from any tendency to seek explanation, and resolving not to adopt any opinion unless imposed by facts or the result of actual and close investigation."

The essay before us is the result of Dr. N.'s careful study of the disease under these most favourable circumstances. We had a right, therefore, to expect from it a more accurate delineation of its characteristics, a more satisfactory exposition of its pathology, and something more certain in regard to its alleviation and cure than what we were already in possession of. We regret, however, to say that this reasonable expectation has been disappointed. We find scarcely a single idea of any importance that is strictly new. The description given by the author of the disease, its symptoms, progress, and results, according as it occurs in patients of different ages, sexes, and constitution, is more full and accurate than we meet with in the few books where it is formally treated of, but in all else the author has been anticipated by Dr. E. Miller, whose monograph on sea-sickness was published in 1814.

Dr. Nelken's pathology of sea-sickness is given in the following words:—

"The long-continued and violent motion of the ship communicates its disturbing influence simultaneously to all the viscera and organs contained within the abdomen, thorax, cranium, and spinal column—that according to the idiosyncrasy—in other words, to the peculiar structure and impressibility of the ganglion, pneumogastric, and cerebro-spinal systems of nerves in different individuals, various symptoms manifest themselves. Thus with some it is the cerebro-spinal nervous system which seems most affected. The patient then suffers chiefly from dizziness. With others, it is the pneumogastric nerves which appear to be most impressed, and we then observe vomiting and difficulty of respiration as the consequence of their derangement. Again, with others, the effects of the general disturbance seem to bear particularly upon the ganglionic nerves, and result either in dyspepsia, diarrhoea, or constipation. Finally, several of these various systems of nerves may be simultaneously and equally affected, and sea-sickness then develops itself, as it has been seen in the symptomatology, under its combined or complicated forms."

This is but the theory of Dr. Good somewhat developed, but by that development brought somewhat nearer to the truth. We do not believe that the mere impression made upon the visual and external sentient organs by the motion,

apparent and real, of the ship and surrounding objects, is the producing cause of sea-sickness. We know, that by merely closing the eyes, we cannot, as Darwin and Miller suppose, ward off an attack; the fact is, that to remain as much as possible on deck "in all varieties of weather," where the "instability and unaccustomed movements of all objects upon the water," as well as the motions of the vessel itself, must necessarily be experienced to the greatest extent, is admitted on all hands to be one of the best means of preventing sea-sickness, or of allaying it after it has occurred.

Dr. Nelken's plan of treatment is to remove diarrhoea, when present, by the use of mucilaginous and aromatic drinks, or, in obstinate cases, by opiates, and to counteract costiveness, when it exists, by purgatives adapted to the obstinacy of the symptom and the constitution of the patient.

To allay vertigo and vomiting he has no confidence in aromatics or effervescent drinks, ether, or chloroform; while strychnine he ranks as much inferior to the remedy, of which we subjoin his own account.

"After frequently observing," he remarks, "that the stomach, in most of the patients, is momentarily quieted upon the ingestion of food, and that sleep affords them relief, I finally determined upon the possibility of an efficient treatment. I directed my attention, in particular, upon the whole series of narcotics, and selected morphine as the most suitable, and used it subsequently, in many cases, both for giddiness and vomiting, with entire success. I gave it in the dose of half a grain twice a day. In severe cases, and with some individuals, the dose must be increased. But in such cases great circumspection and care are required in its management. The relief afforded to the patient from the use of this narcotic does not generally last more than from twelve to twenty-four hours. With the return of the symptoms, giddiness and vomiting, the morphine must be resumed again.

"The *position* of the patient deserves equally to be taken into consideration—the horizontal proving much more agreeable than the erect posture, as it better supports the stomach, intestines, and all other internal viscera, and prevents thereby, to a certain degree, their too great disturbance by the oscillation of the vessel. For the same reason, an abdominal supporter, made in a manner to cover the whole abdomen, and to offer a certain degree of resistance, proves also highly serviceable."

In respect to diet, Dr. N. objects equally to abstinence, and to too great an indulgence in food.

"A generous diet," he observes, "that is, substantial and succulent food, easy of digestion, with the addition of a little brandy or wine, according to the habit of the patient, is undoubtedly the most befitting and useful. Such a regimen is nourishing and strengthening, does not oppress the stomach, but acts somewhat as a soothing or sedative remedy; in other words, *settles* the stomach. Sweetened water, with the addition of lemon-juice, or a little citric or tartaric acid, forms a grateful beverage, much enjoyed by the sea-sick. Remaining in the open air on deck, where the shock of the vessel is somewhat modified, is of undeniable service."

The treatise of Dr. N. presents, confessedly, a very good succinct account of the pathology and treatment of sea-sickness. With the exception of a more detailed account of its symptoms, his amplification of the views of Good as to the mode of its production, and his suggestions as to its treatment by morphine, we find, however, nothing whatever in it that is not much better told in the monograph of Dr. Edward Miller, published upwards of forty-two years ago. It is somewhat surprising that this well-known monograph is omitted from the list appended by Dr. N. "of all the articles or treatises heretofore published on the subject." The fact is, with a very little research, that list might be considerably increased.

D. F. C.

ART. XXIX.—*Ueber die Heilwirkungen des Constanten Galvanischen Stromes bei Contracturen, Lähmungen, und Atrophien der Muskeln.* Von R. REMAK, M. D. Abdruck aus Götschen's "Deutscher Klinik," No. 35, vom. 30 August, 1856.

*On the Curative Powers of the Continuous Galvanic Current in Contractions, Palsy, and Atrophy of the Muscles.* By ROBERT REMAK, M. D. Extracted from Götschen's *German Clinic*, No. 35, for August, 1856.

*Sur l'Action Physiologique et Thérapeutique du Courant Galvanique Constant sur les Nerfs et les Muscles de l'Homme.* Par M. R. REMAK.

*Note additionnelle au Mémoire sur l'Action Physiologique et Thérapeutique du Courant Constant sur les Nerfs et les Muscles de l'Homme.* Par M. R. REMAK. *Extraits des Comptes Rendus des Séances de l'Académie des Sciences*, tome XLIII., Séances du 22 Septembre, et du 29 Septembre, 1856.

*On the Physiological and Therapeutic action of the Continued Galvanic Current on the Nerves and Muscles of Man.* By R. REMAK.

*Additional Note to the above Memoir.* By R. REMAK. *From the Comptes Rendus of the Sessions of the Academy of Sciences.*

EXPERIENCE has, by no means, as yet, confirmed the expectations which were by many indulged in, that in galvanism we should find a remedy adapted to the relief, if not the entire cure, of the various chronic affections of the nervous centres. Though at first sight galvanism would appear to be, unquestionably, an appropriate and certain excitant of nervous action in cases in which this was absent or deficient, yet in the larger number of instances where it has been tried, in a manner and with a perseverance that should apparently warrant success, either no good effects, or those only of a temporary character, have been derived from its application. Whether this has arisen from the fact of the actual inefficiency of galvanism in the cases in which it has been tried, or the injudicious and unskilful mode of its application, is still a proper subject of inquiry.

Recently Dr. Remak, of Berlin, has drawn the attention of the profession in Germany to the curative powers of galvanism, in a variety of diseased conditions of the muscles, over which the physician has, heretofore, had but little control, when methodically applied, and in a continuous current. He has published, in the medical periodicals of Germany, several communications on the subject, which, though they are replete with statements of a somewhat surprising character, yet, from the well-known character and standing of Dr. Remak, demand our serious consideration. Certainly, should general experience confirm the observations reported by him in reference to the curative powers of a continuous stream of galvanism in contractions, palsy, and atrophy of the muscles, he deserves the grateful thanks of the entire medical profession, for having placed at their command a remedial agent of almost miraculous efficacy for the removal of morbid conditions against which the curative means in their possession have heretofore proved powerless.

A communication from Dr. Remak "on the relaxation of paralytic contractions by means of a continuous galvanic current," was published in the number of the *German Clinic* for July, 1856.

"Scarcely," he remarks, in the essay before us, "had that communication gone to press, when, in treating a case of hemiplegia, with muscular contraction, in a female, I made an observation which gave a new direction to my investigations. I remarked that, upon directing the galvanic current through the anterior portion of the muscles of the shoulder, the patient not only regained entire command over these muscles, but that the extensor muscles of the hand, which had been entirely paralyzed, became involuntarily and forcibly contracted. Thus, by this case, was the methodical employment of the tonic reflex, and central alternative movements, which I had demonstrated in my own person, manifested and exemplified."

We are unable to present to our readers any explanation of the exact import

of the foregoing words, or their application as a guide to the proper employment of the galvanic current. The subject to which they refer was reported by Dr. Remak, in the 25th number of the *German Clinic*, which we have not seen.

"It will be conceived," continues Dr. R., "that after the observation referred to, I felt desirous of establishing its full bearing in numerous cases of disease. Notwithstanding Dr. Romberg and other physicians, to enable me to do this, had the kindness to send me patients, yet as these were not sufficient for my purpose, I inserted, in the Berlin papers, an invitation to those afflicted with the diseases in which I was desirous of testing the effects of the methodical application of the galvanic current, to apply to me. The sick, in consequence, flocked to me with inconceivable confidence. Many who had for years been pronounced incurable, and of whom some had not, for a long period, sought for relief. Thus I have been enabled, in the space of six weeks, to examine nearly four hundred cases of the rarest kind, and to apply to two hundred galvanism in a continuous current. About one-third of these—contractions with central palsy—have been cured, about one-third are still under treatment—the most of them improved—while of one-third the treatment has, for various causes, chiefly want of time, been delayed."

In an article contained in another medical journal, Dr. Remak observes:—

"I had fully intended, in conformity with a statement recently made in this journal, to give, without delay, some further explanations in respect to the methodical employment of the continuous galvanic current, as discovered by me for the cure of palsy and other diseases of the nerves and muscles; my proposed communication has not been before presented, because the sphere of the curative powers of the continuous galvanic current was daily enlarging; its full extent has even now not been reached.

"The relaxation of paralytic contractions, constituted, as is well known, its first difficult achievement; to this are to be now added, as its daily and well-established results, the solution of rheumatic and gouty contractions, and the allaying of rheumatic pains. As a means for the removal of contractions of the muscles of the chest and back, and of thus enlarging the capacity of the thorax, and removing distortions of the spine, some facts in proof of its efficacy have been already made known. It has been also found to effect the removal of the contractions remaining after affections of the joints—in general restoring to the patient command over the movements of the crippled limb. In a case of injury of the muscles of the shoulder consequent upon a fall on the elbow, which occurred within a few days, the continuous galvanic current restored the free use of the arm in a minute.

"That the continuous galvanic current is competent to restore, fully or in part, the patient's command over the movements of the limbs, and of the tongue in cases of apoplectic palsy, occurring in adults and in children, has been already demonstrated. Even the frightful progressive atrophy of the muscles it would appear competent to restrain—so far as a judgment can be formed from the result of a case of this kind in which it was recently employed. It has also been shown that, by the application of the continuous current, neuralgic pains, under which the patients had laboured for years, may be allayed in a minute. In cases of paralysis of the spinal cord—the so-called spinal atrophy—the continuous current will, in a few days, strengthen the limbs, and render the act of progression more secure, and, at the same time, control the attendant paralysis of the bladder."

In a subsequent communication, Dr. Remak states that, "by a long course of observations he has proved, beyond doubt, that the continuous galvanic current is capable of restoring, often within a single minute, an atrophied limb to its normal size. This result," he remarks, "has been obtained in a variety of cases, and it is one, he thinks, of vast importance in the treatment of paralysis."

It is, all must confess, one of primary importance, and, at the same time, certainly one of the most surprising of the results that Dr. R. attributes to the action of the galvanic current. How that any agent is capable, in a single minute (*"binnen einer einzigen minute"*) to so excite the nutrition of an atrophied

muscle as to enable this, within that time, to restore it to its normal size ("*sein normales volumen wiederzugeben*"), is to us incomprehensible. Had it come from a less reliable source than what it does, we should have passed by the statement as one altogether unworthy of notice.

"The removal of apoplectic spinal paralysis," Dr. R. goes on to say, "is attended with more difficulty than is the removal of the affection denominated *tabes dorsalis*. Of fourteen cases of the latter, he has, as yet, in no instance failed in giving relief. In some the improvement occurred with surprising quickness; even in cases of ten years' continuance, the benefit has been most decided.

"Of five cases of palsy of the bladder and rectum, all have been cured—in only one case has no relief been yet obtained. In some cases of double vision and of conjunctivitis of amblyoptic eyes, of six months' duration, the disease has disappeared during the first days of the treatment.

"In local and general chorea," according to Dr. R., "the galvanic current has succeeded in quieting the irregular movements; in one case within thirty-five minutes. As to a complete cure of the disease, he is, as yet, unable to offer any positive judgment. The same is the case, also, with respect to paralysis agitans. In the majority of cases, the result has been heretofore but temporary; in a few, however, the improvement has been progressive. He has not had sufficient time to procure permanent benefit in disease of this kind. In tremors of the limbs, the effects of the galvanic current are likewise very ambiguous; they have as yet by no certain method been rendered more certain."

Dr. R., in conclusion, remarks that he believes himself warranted in affirming that the surprising curative effects of the continuous galvanic current, so far at least as refers to paralysis, etc., of the muscles, are altogether the result of its methodical action upon the central organs of the nervous system.

The communication of Dr. Remak is simply an enunciation, in general terms, of the results he has obtained from the application of the continued galvanic current in certain diseases. We regret that we are unable to present to our readers any account of the particular manner in which the galvanic current is applied by him—the length of time it is continued—or the intervals at which it is repeated. A history of the several cases would be not merely interesting, but absolutely necessary to a correct appreciation of the therapeutic use and value of the agent under consideration. We were desirous of placing before our readers the statements of Dr. R. in regard to the curative powers of the continuous galvanic current, which, however startling they may appear, would seem, from the character of the source from whence they emanate, to demand our serious consideration.

After the foregoing notice was written, we received the two communications made by Dr. R. to the French Academy of Sciences. We append the following extracts from these, as they tend to throw some additional light upon subjects which are obscurely hinted at in the German communication.

Referring to a note which he had presented to the Academy in December, 1855, in relation to the tonic contraction of the muscles produced in the human subject by means of uninterrupted galvanic currents, he remarks:—

"Since then, in pursuing my experiments, I have established beyond doubt that the tonic or permanent contractions which occur in a limb during the passage through a nervous trunk of a continued galvanic current, whether in the muscles controlled by that nerve, or in their antagonists, is of a reflex nature, and may, in consequence, be produced also by the galvanic excitation of certain cutaneous nerves. It is thus demonstrated that the continued excitation of the sensible nervous fibres, which, as we have known since the experiments of Volta, are produced by the continued action of the galvanic current, may, in the human subject, be transmitted to the nervous centres, and cause permanent contractions which are in relation with the portions of those centres thus excited."

Dr. R. then states that he was induced to try the effects of elective currents in the relaxation of muscular contractions. His first experiment was made June 13, 1856, on a female who had suffered for two years from hemiplegia,

with contractions. This experiment was in appearance satisfactory, so far as related to the power of the galvanic stream in the relaxation of muscular contraction; but he soon found that under the influence of the interrupted current the relaxed muscles were no longer under the control of the will. He therefore made a similar experiment on the 22d of June, with an uninterrupted current from one of Daniell's batteries of twenty elements.

"After having directed the galvanic current for some minutes upon the contracted muscles of the shoulder, I had the satisfaction to observe that they became more lax, and began to obey the will of the patient. In pursuing these experiments upon the same subject, with a constantly increasing beneficial result, during the space of a month, my attention was attracted by phenomena which forced upon me the conviction that the cessation of the muscular contraction was not a fact simply peripheral, but that it was the result of an excitation of the nervous centres. In consequence, my researches were directed to a therapeutic application of the galvanatonic muscular contractions which I had discovered by experiments in my own person, and I tested, in a large number of cases, the effects of the continued galvanic current in the removal of rheumatic and arthritic contractions, as well as paralytic, or those combined with cerebral hemiplegia.

"In the course of these experiments in hemiplegic subjects, I have often seen paralysis of the face, or of the tongue, even intellectual feebleness, ameliorated, although the galvanic current had been directed solely through the extremities; showing conclusively that the galvanic influence was transmitted to the nervous centres. I was, accordingly, induced to test its efficacy in the cure of partial and general chorea, and paraplegia, especially that form of spinal palsy which is known in Germany under the name of *tabes dorsalis*, and which is commonly believed to be caused by atrophy of the spinal marrow. I would not speak, as yet, of the surprising success that I have met with in the treatment of these affections, and of paralysis of the bladder and rectum, but I may say that the results of my experience are such as to lead me to the belief that, in the continued galvanic current, we have an agent capable of not only exciting the nervous centres, but of regulating and re-establishing the action of the central ganglionic cellules, by communicating to them the peripheral excitement of the nervous fibres. Accordingly, it is easy to comprehend that I have succeeded in curing neuralgia of the extremities of long continuance, and often in appeasing those tremors of the limbs which had evidently a central cause.

"There are facts even which lead to the supposition that the nervous fibres, and consequently the ganglionic cellules, may, under the influence of the continued galvanic current, return to their normal size. I have, at least, observed frequently that the atrophied muscles of a limb will augment suddenly while the current is traversing the nervous trunks, an effect that I cannot believe to be purely peripheral, because I have witnessed instances where the muscles were subject, during the passage of the current, to tremblings or violent contractions, that, according to my physiological investigations, should be regarded as reflex movements. On the other hand, it results from microscopic researches made by me during the last year or two, that the central portion of the nervous fibres discovered by me in 1837, and now recognized as the cylinder of axis of Purkinje, will become swollen in the presence of fluids, when divested of its sheath, and loses this endosmotic property some time after death, in undergoing a hardening similar to the cadaveric rigidity of the muscular fibre.

"As the number of the patients upon whom my experiments have heretofore been made has not exceeded two hundred, I will not be expected to enter into details concerning the mode of application of the continued galvanic currents for the cure of the several affections referred to in this memoir. I would merely say, that the removal by them of the rheumatic contractions, so common among the labouring classes, is an established fact, as may often be shown in a few minutes; and I am convinced that they are applicable to the amelioration or removal of the scoliotic (spinal) deviations, and the deficient development of the thoracic cavity, which occurs so often in young persons from a contraction or debility of the respiratory muscles."

The object of the second communication made by Dr. R. to the Academy, is to supply an omission in the first as to the efficacy of the continued galvanic current in the removal of rheumatic pains. "It is to be remarked," Dr. R. observes, "that the allaying of pain is an important point in the treatment of contractions, the latter being, in many cases, but the consecutive phenomena of the first."

"Among the cases," says Dr. R., "which I have had an opportunity of treating in Paris, through the kindness of MM. Cazalis, Moissenet, Follin, Brocca, Buigont, Lecorcher, and others, there was a considerable number in which a recent affection of the nerves of sensation seemed to constitute the sole cause of the trouble in the functions of the muscles, and which we were, consequently, enabled to cure in a few minutes by moderate galvanic currents. In other cases of contractions of some continuance, as in those I have had the honour of treating very recently under the eyes of the Commission of the Academy, the susceptibility of the nerves of sensation being diminished, it was necessary to employ stronger currents to remove the contractions by restoring to the nervous centres their control over the enfeebled antagonistic muscles."

The memoir of Dr. Remak was referred to a commission composed of MM. Andral, Rayer, and Velpeau, for the report of which we shall look forward with no little interest.

D. F. C.

ART. XXX.—*Lectures on the Diseases of Women.* By CHARLES WEST, M. D., Fellow of the Royal College of Physicians; Examiner in Midwifery at the Royal College of Surgeons, of England; Physician-Accoucheur to St. Bartholomew's Hospital, and Physician to the Hospital for Sick Children. Part I. Diseases of the Uterus. 8vo. pp. 413. London, 1856.

THESE lectures form a valuable addition to our means of instruction in respect to a class of diseases always of importance, and which are every day becoming more and more frequent in all our larger cities, at least, if not throughout the country. Dr. West, it is true, presents us with neither novel views in regard to the leading uterine affections of which he treats, nor, in his directions for their therapeutical management, furnishes us with new plans of treatment, or remedies other than such as are already well known and generally employed. The value of his prelections consists less in any originality of doctrine or of practice set forth in them, than in the testing of the worth of generally received opinions and practices by the results of the lecturer's own clinical experience. Dr. West is pre-eminently a careful and independent observer, a clear and accurate reasoner, and a greater friend to truth than to mere authority; much more practical than hypothetical. It is this which gives to all his teachings their peculiar value, and causes us to feel when we rise from their perusal that the information we have thence derived is real and permanent.

The volume before us is restricted to a consideration of the more prominent of the strictly uterine affections; a second volume, which will treat of all the remaining diseases of the female system, is promised within three years from this time, should the health and life of the author be spared.

The first two lectures treat of the symptoms, generally, of the diseases of women, and the modes of examination. From the opening lecture we quote the following remarks of Dr. West, as well because of their truth and importance, as from our conviction that they are too much overlooked by some of our own physicians who have, in consequence, been drawn into errors of diagnosis and of treatment, by which they have not only misled themselves but others.

"Some men," says Dr. W., "regard the local ailment as everything; others almost lose sight of its existence, and it is difficult to say which of these two errors is the more mischievous. A woman applies to a practitioner who is guilty of the first mentioned error, complaining of painful and scanty menstruation."

ation; he at once adopts mechanical means for her relief. He introduces bougies to widen the canal, and to remove some, perhaps imaginary, contraction of the cervix uteri, by which he conceives the escape of the menstrual fluid to be impeded, and he even incises it to make sure of enlarging its caliber. After undergoing much pain of body and much distress of mind, the patient finds herself at the end of these manipulations no better than when they began; the cause of her sufferings lay deeper, and was to have been found in the derangement of her general health, which would have attracted the notice of a better physician, and which well directed measures would probably have cured. Let me mention another case as illustrative of the opposite error. A patient seeks relief on account of profuse menstruation, attended with discharge of coagula, but accompanied with little or no pain. General treatment is adopted, the patient is confined to the recumbent posture, in a cool well-ventilated room, astringents are given internally, cold is applied locally, and no sign of disorder of the general health is allowed to pass without appropriate means for its cure; but yet amendment does not follow, for the bleeding depends upon the presence of a minute polypus, which nothing but a careful examination of the uterus could discover. In the one case a crass mechanical treatment was adopted to cure an affection which depended on the state of the general health; in the other, general treatment failed to remove symptoms which careful investigation would have shown to depend upon a local cause.

"But I need not draw upon imaginary cases in order to enforce the caution that I am desirous of impressing on you; the records either of hospital or of private practice afford illustrations of it in abundance.

"A middle-aged woman complained of frequent desire to pass water, and of discomfort in voiding it. She was dyspeptic, and out of health. Her urine was tested and found to contain albumen, and the irritable state of her bladder was assumed to be dependent on the disease of her kidneys. Treatment improved her general health, but brought no relief to her dysuria. At length, careful observation discovered the albumen to be due to the admixture of vaginal discharges with her urine, a not unfrequent source of it in women who suffer from leucorrhœa, while examination, which had been delayed too long, detected a small vascular tumour just within the orifice of the urethra, to the irritation produced by which her symptoms were due, as was shown by their immediate disappearance on its removal.

"A young lady, whose health had never been robust, began at the age of twenty-two to menstruate irregularly and scantily, and to suffer at the same time from pruritus of the vulva. For this symptom various local applications were resorted to, and more than once she underwent the distress of an examination, which discovered nothing more than an increased redness about the labia and nymphæ. At length, with the decline of her general health, she came under the care of another physician, who ascertained that sugar was present in her urine. The pruritus, like the itching of the urethra in the male subject, was the consequence and the symptom of the diabetes of which the poor girl eventually died.

"A woman was admitted into the hospital, a few years ago, in a state of extreme suffering; her countenance was very anxious, she lay in bed with her knees drawn up, dreading the slightest movement; her abdomen was intolerant even of the slightest pressure. She was reputed to have peritonitis, and had been bled for this, as well as abundantly salivated before her admission, yet without relief. But with all this her skin was perspiring and her pulse was soft and not increased in frequency. Her history was, that after vague uterine ailments for a month, she was suddenly attacked by violent pain in the womb, attended with bearing-down efforts equal in intensity to those of labour. These subsided, but the pain was referred to the bladder, and desire to pass water became very frequent. This, too, abated, and the next complaint was of violent pain in the shoulder, which was encountered by active measures for the relief of alleged inflammation of the shoulder-joint, and the pain in the shoulder suddenly ceasing, the severe abdominal suffering at once succeeded it. A hot hip-bath gave almost immediate relief, though the patient screamed when moved in order to be placed in it; and a full dose of opium was followed

by some hours of quiet sleep. The next day no pain was complained of except over the pubes, and this soon disappeared under the use of anodynes, and steel and good food completed the cure of a case of hysterical peritonitis."

The third, fourth, and fifth lectures treat of the several disturbances of menstruation—amenorrhœa, menorrhagia, and dysmenorrhœa. The entire subject is discussed with great ability. Correct views are inculcated in respect to the nature and causes of the different forms under which the disorders of menstruation present themselves, and a sound, rational plan of treatment laid down for the management of such of them as are curable by therapeutic means.

Speaking of that form of dysmenorrhœa in which the suffering is referred to the narrowness of the os and cervix uteri, and which has of late years excited much attention, Dr. W. remarks:—

"The impediment may exist either at the external os uteri, or at some limited part of the cervix, especially at the internal os, where the body and neck of the womb communicate, or it may involve the whole of its canal. It appears, in some instances, to be attributable to inflammation, and probably ulceration of the cervical canal, as in the case of a woman once under my care, the canal of whose cervix was at one point so nearly obliterated, as not to allow the passage of the finest catgut bougie, and who referred her sufferings to the effects of a labour twelve years before. In other instances the dysmenorrhœa is habitual, and the narrow cervix is a congenital condition, or one due at least to some defect of uterine development, and this latter I believe to be the more frequent form of the affection.

"An impression has of late years been gaining ground that this form of dysmenorrhœa is very common, and mechanical means of treating it have accordingly come very much in vogue, to the neglect, it is to be feared, in many instances, of those internal remedies, by which painful menstruation is in general much more appropriately treated. One circumstance, which I believe to have much contributed to the support of this opinion, is the fact that, on introducing the uterine sound, an obstacle is very often encountered at the internal os uteri to the passage of the instrument into the cavity of the womb. That this obstacle, however, is in reality perfectly natural, can be readily ascertained on the dead subject, since even after the removal of the uterus from the body, a bougie which passes with ease along the cervical canal will then encounter a resistance such as can often be overcome only by considerable effort, or, perhaps, not at all, though a smaller bougie will pass at once with perfect facility, and the uterus, when laid open, will be found to be perfectly healthy. The constriction in this situation which is found to be so considerable after death, was, doubtless, in these, and many other instances, far more considerable during life, and yet in spite of it, the history of such persons often gives no account of difficult or painful menstruation. Nor, indeed, need this surprise us, for the discharges take place during menstruation, not in a continuous stream as the urine flows from the bladder, but oozes from the interior of the womb, the blood escaping drop by drop from the os uteri. If the aperture be so small as scarcely to allow this to take place, menstruation, no doubt, may be rendered very painful, and, just as when stricture of the urethra exists, the bladder, and ureters, and kidneys become irritated and disturbed in the performance of their functions, so it is quite conceivable that a similar state of the cervix uteri may exert the same influence on the function of that organ, and render the menstrual flux scanty in quantity and morbid in character, as the consequence of the difficulty in its discharge. A slight amount of unbiased observation, however, will teach you that such a contraction of the os or cervix uteri as to impede the discharge of the menses *guttatim* is very unusual; while it will further show that in the majority of cases in which this condition really exists, the narrow cervix is only a part of the evil, that the neck of the womb is small because the organ is altogether very undeveloped."

There is great truth in the foregoing remarks; we would urge them strongly upon the attention of physicians. Mechanical explanations of the causation of a long list of ailments observed in females, have of late years become very popular with the profession, and as a necessary consequence mechanical means

have been devised for their removal. Upon close inquiry, it will be found, we suspect, that in the majority of cases these explanations are as incorrect, and the plans of treatment based upon them as unnecessary and useless as Dr. W. attempts to show is the case in reference to the supposed connection of dysmenorrhœa, with constriction of the os and cervical canal of the uterus. Mechanical dilatation of the cervix uteri should never be resorted to in cases of dysmenorrhœa on mere speculation, and with no better warrant than the fact that painful menstruation is habitual or of long standing, and that other means have not been successful in effecting its cure.

With the sixth lecture commences the consideration of the diseases affecting the tissues of the uterus, and of the several displacements of the organ.

A very excellent account is given of the acute and chronic inflammations of the womb. The history of acute uterine inflammation, which in the non-pregnant female is universally admitted to be of very rare occurrence, is preceded by a consideration of hypertrophy of the uterus, whether of the entire organ, or of its cervix only—according as it results from deficient involution after delivery or abortion, from uterine irritation, and other causes. The subject of chronic inflammation of the womb and its results is one of deep importance, inasmuch as to this source is now referred almost every disturbance of health—every pain, ailment, and disability under which the female, from puberty to the final close of her career, may happen to labour.

“Inflammation of the uterus,” remarks Dr. W., “is now regarded by many writers as the most frequent of all diseases of the organ, and its consequences as so far reaching that they may persist for many years, disturbing its functions, altering its structure, and outlasting in their ill effects even the period of sexual vigour. This opinion, too, which tends to bring about a complete revolution in theory and practice concerning uterine ailments, is entertained by persons whose authority is entitled to such weight, is enforced by arguments which seem so plausible, and supported by an appeal to such large experience, that if it do not at once compel our acquiescence, at least it cannot be rejected without much consideration and careful examination.”

To such an examination Dr. West has subjected it. He objects to the conclusions of those who deny the strict locality of the various uterine affections, and views them all as the result of some general constitutional disturbance, and consequently would have the treatment addressed principally to the latter, and more subordinately to the former. He considers that many considerations render it probable that the uterus, more frequently perhaps than any other organ of the body, should be the seat of certain forms of local ailment, and should, consequently, require the frequent employment of local treatment. He, nevertheless, is equally opposed to the opposite doctrine, which regards the uterine ailment as the primary and more important in almost every instance, and the constitutional disorder as nothing else than its necessary result. The influence of which doctrine “is apparent in the practice of those who are constantly on the look-out for a mechanical cause of dysmenorrhœa, and who frequently dilate or incise the cervix uteri for its cure, who trace the gravest evils to slight misplacements of the womb, and introduce instruments into its interior to remedy its mal-position; or, lastly, who discover in some very small and limited ailment of the mucous membrane of the os uteri an adequate explanation of the most varied and most distant ills, and who as sedulously adopt as their opponents studiously avoid local treatment for the cure of uterine disorders.”

It is to the views of those who base the pathology of female diseases, especially those of a chronic character, almost exclusively upon ulceration of the os uteri that Dr. W. chiefly directs his examination. The general scope of this examination our readers are already familiar with, from the notice given in a former number, of his inquiry into the pathological importance of ulceration of the os uteri. His conclusion is, “that the condition of so-called ulceration or abrasion of the os uteri is far from infrequent even in cases where no uterine symptoms were complained of during life, but that it is usually unassociated with other important affections of the uterus, such as may be supposed to be the effect of inflammatory action: and further, that such affections do not seem

to be readily excited by causes acting on the neck of the womb either when displaced or when the organ is in its natural position."

It may not be uninteresting to our readers to be presented with the leading deductions which Dr. W. supposes to flow from the several classes of facts investigated by him in reference to this subject, as summed up in the lectures before us.

"1st. Uterine pain, menstrual disorder, and leucorrhœal discharges—the symptoms ordinarily attributed to ulceration of the os uteri—are met with independently of that condition almost as often as in connection with it.

"2d. These symptoms are observed in both classes of cases with a vastly preponderating frequency at the time of the greatest vigour of the sexual functions, and no cause has so great a share in their production as the different incidents connected with the active exercise of the reproductive powers. But it does not appear that ulceration of the os uteri exerts any special influence either in causing sterility or in inducing abortion.

"3d. While the symptoms are identical in character in the two classes of cases, they seem to present a slight increased degree of intensity in those cases in which ulceration of the os uteri exists.

"4th. In as far as could be ascertained by careful examination, four-fifths of the cases of either class presented appreciable changes in the condition of the uterus—such as misplacement, enlargement, and hardening of its tissue, while frequently several of those conditions co-existed. An indurated and hypertrophied state of the cervix uteri was, however, more frequent in connection with ulceration of the os uteri than independently of that condition.

"5th. The inference, however, to which the last mentioned fact would seem to lead, as to the existence of some necessary relation—such as that of cause and effect—between ulceration of the os uteri and induration of its cervix, is in great measure negatived by two circumstances. 1. That in numerous instances an indurated cervix co-existed with a healthy os uteri. 2. That while in many of the cases in which induration of the cervix existed, the ulceration of the os was very slight, induration was entirely absent in other instances where the ulceration was noticed as having been very extensive.

"Since, then, we find that a very great degree of resemblance exists between the two classes of cases, that women of the same age, in similar circumstances, present the same symptoms, leading to the same results, having the same duration, and attended with similar structural changes, whether ulceration of the os uteri is present or absent, it may fairly be inferred, that ulceration of the womb is neither a general cause of uterine disease, nor a trustworthy index of its progress, and it follows, I think, as a necessary corollary, that the endeavour by local remedies to remove this condition of the os is not the all important object in the treatment of uterine disease, which the teaching and the practice of some physicians would lead us to imagine."

Dr. West denies that uterine leucorrhœa is due mainly to a hypersecretion from the glandular apparatus of the cervix uteri; he believes it to depend upon an increased secretion from the lining membrane of the womb itself.

In lecture 9, the subject of misplacements is taken up. Prolapsus is first considered, in its various degrees, up to complete procidentia, and, in intimate connection, prolapse of the vagina also. The author's teachings on these important subjects will be read with deep interest. They are calculated to convey accurate and clear views of the nature and causes of the accidents referred to, and to lead to a correct mode of procedure in reference to their prevention and cure. The treatment of prolapsus uteri is ably discussed in the ensuing lecture. The cases requiring or not requiring mechanical support are carefully distinguished; and the uses and varieties of pessaries, and external supports and bandages pointed out.

The employment of mechanical support for the misplaced womb, is considered by Dr. W. to be neither necessary nor suitable:—

"1st. In slight cases of uterine prolapse.

"2d. In cases where the descent of the womb, still comparatively recent, is due to the persistence of the state of puerperal hypertrophy, owing to imperfect involution of the organ after abortion or labour.

"3d. In cases where uterine disease of whatever kind was the occasion of the misplacement of the organ, such disease being still in a stage calling for treatment.

"On the other hand, mechanical means of some kind or other, are generally appropriate.

"1st. In all cases of external prolapse, or procidentia of the uterus.

"2d. In cases of long standing prolapse in the second degree" (in which the uterus lies with its fundus directed backwards, its orifice forwards, so that its long axis corresponds with the axis of the pelvic outlet), "associated with much relaxation of the vagina, and consequent weakening of the uterine supports.

"3d. In all cases of extensive laceration of the perineum, and, for a similar reason, in cases of prolapsus of the aged.

"4th. In cases of the minor degrees of prolapsus which are accompanied by extreme distress or violent pain.

"5th. In all cases of considerable prolapsus of the vagina, with or without descent of the rectum or bladder, and in all cases in which the uterine prolapsus is secondary to any of those other forms of misplacement."

Versions and flexions of the uterus constitute the subject of the 11th and 12th lectures. These are rendered important subjects from the fact that, to the existence of slight versions or flexions of the uterus, occurring even in young virgins, a host of sufferings have been ascribed, and with those who look thus to slight misplacements of the organ as the chief cause of almost all the ailments incident to the female sex, the grand aim is the invention of mechanical means to remedy such misplacement. It is really surprising how almost invariably these misplacements are met with by a certain class of practitioners—it is seldom they search for them, that they do not detect them. Now Dr. W. believes that there are facts which show that the importance of uterine misplacements has probably been much overrated, a position which we have maintained again and again, much to the scandal of several of our professional friends.

The facts to which Dr. W. alludes are furnished by cases in which the removal of the misplacement, though no other uterine ailment was discoverable, has not been followed by any mitigation of the patient's sufferings, as well as by others in which the symptoms once present have ceased, in spite of the persistence of the misplacement. Two cases are detailed in evidence.

"But," remarks the lecturer, "be the value of cases such as these what it may, as proving, on the one hand, that flexions of the womb do not of necessity give rise to any suffering, and on the other, that the removal of a flexion of the organ may not be followed by the least relief to a patient's distress, the fact still remains that misplacement of the womb is in very many instances accompanied by various uterine ailments, such as were not experienced before its occurrence. The question, however, suggests itself, with reference to these cases, as to whether their history presents any peculiarity which would warrant our believing that the symptoms are due not simply to the misplacement, but to some other morbid condition with which the displacement is associated, or to the two causes together? Now, there are circumstances which appear to favour the opinion that, in the majority of instances, the symptoms are due not to misplacement alone, but to misplacement accompanied by some other morbid state of the womb."

After referring to statistics and facts bearing directly upon this question, Dr. W. remarks:—

"It seems, then, that in by far the majority of instances, the development of all the symptoms of flexion or version of the uterus coincided with the operation of some cause which increased the size of the womb, or produced congestion of the pelvic viscera; and, further, it may be added that the almost immediate relief which followed rest, local depletion, and the due regulation of the bowels, seems to show that to these associated ailments, rather than to the mere misplacement of the womb, the patient's sufferings were to be attributed. Not unfrequently, however, the relief, though striking, was of short duration, and the patient had not long followed her usual avocations, or not

long returned to her husband's bed, before many of her former symptoms returned. But this is by no means peculiar to misplacement of the womb; for we see illustrations of it in the increased suffering which, in almost every uterine ailment, attends upon the menstrual period, and in the aggravation of all previous uterine discomfort, which in many women succeeds to marriage, and which is sometimes the occasion of ailments being brought to light whose very existence was previously unsuspected."

As, however, Dr. W. believes, there can be no doubt that the mere displacement of the womb does of itself sometimes produce suffering, and occasion functional disturbance, so it must also, he thinks, be conceded that the removal of such misplacements by the sound, and the maintenance of the womb in its proper position by the uterine supporter, have been followed by the cessation of suffering and by permanent cure; and further, that these results have been obtained in some cases which had been submitted to other modes of cure without benefit.

"These advantages, however," he adds, "are in my opinion more than counterbalanced by the following evils, which, without entering upon long, and I fear useless disputes, I will simply enumerate:—

"1st. The safe employment of the instrument requires that, as a general rule, its use should be continued for only a very few hours at a time, a necessity which implies that every woman who is submitted to this mode of treatment shall undergo two vaginal examinations every day, the one for the introduction of the instrument and the other for its withdrawal.

"2d. The quietude which its use imposes, and the restrictions to which the patient is compelled to submit in order to avoid severe suffering, and the risk of serious danger, are at least as absolute in their kind, and as irksome to be borne as those which any other mode of treatment involves, while it is necessary to continue them for as long a time.

"3d. In spite of all precautions the treatment is generally painful, often dangerous, sometimes fatal; and the untoward accidents have not been by any means constantly attributable to want of prudence either on the part of the practitioner or of his patient.

"4th. Cure even by the long continued employment of this means for several months, is uncertain, while relapses are very frequent after the mechanical support is discontinued; besides which the permanent cure of the misplacement is far from being always followed by the cessation of the symptoms.

"On these accounts," adds Dr. W., "though I have tried the uterine supporter in a few cases, I have now for some time quite given up its employment, and content myself with a mode of treatment, which, though it seems to promise less, yet almost always affords great relief, which in a large number of instances quite removes the patient's sufferings, and is not unfrequently followed by the complete rectification of the position of the womb. The principle, indeed, upon which I act in the management of these cases amounts pretty much to this: that to the best of my power I take care of the general symptoms, and leave the misplacement to take care of itself."

For the details of Dr. W.'s mode of managing misplacements of the uterus, we must refer the reader to the work before us.

The fourteenth, and two succeeding lectures, are devoted to a consideration of uterine tumours and overgrowths. The connection of their occurrence with a tendency of the uterus to hypertrophy generally, is first pointed out; then the different forms of these tumours are described—overgrowths of the mucous membrane, or mucous polypi, are their simplest form; then come fibro-cellular polypi, and glandular polypi from hypertrophy of the uterine follicles. The cystic enlargement of the follicles of the cervix, or mucous cysts of the uterus are described, with an inquiry into the nature and source of the hemorrhages they occasion, and, finally, fibrinous polypus; the analogy of this to other chronic effusions of blood being pointed out, with their general characters, varying seat, and identity of microscopic structure; their influence upon the uterus, and the causes which modify it; the changes which they undergo, and nature's efforts to get rid of them; their disintegration, and calcareous transformation; the influence of age on their production; the symptoms to which they give rise—disorder of menstruation, hemorrhage, pain, sterility, and miscarriage.

In the 17th lecture Dr. W. discusses the treatment of uterine tumours and overgrowths; the precautionary measures proper to retard the growth of fibrous tumours—the management of the menstrual periods, and the palliative measures to be resorted to. He then passes in review the alleged specifics, iodine, bromine, the waters of Kreuznach; he then discusses the several surgical proceedings for their removal, points out the great hazard attending them, and the sources of danger, and concludes with directions for the proper management of cases in which these tumours occur as complications of pregnancy and labour. The management of fibrous polypi is then taken up, and the comparative merits of ligature and excision for their removal considered. The lecture closes with a notice of fatty tumours, and tubercular degeneration of the uterus.

The entire subject of uterine tumours and overgrowths of the uterus is treated of in these lectures with great ability. The author presents his views of their pathology, symptomatology, diagnosis, and treatment, with that conciseness, and, at the same time, perfect clearness, and freedom from all apparent bias arising out of any favourite hypotheses of his own, or the authority of distinguished names, that marks all his writings. No one can fail, from a careful study of the lectures devoted to the affections indicated, to acquire precise and accurate conceptions as to their nature, the accidents by which they are liable to be attended, and the most judicious plans for their treatment.

The remaining three lectures are devoted to the malignant or cancerous diseases of the uterus, and the subject in all its bearings is discussed with the same ability as are the other diseases embraced in the present portion of Dr. West's publication.

We should be gratified to see these lectures widely circulated among the physicians of this country, as well on account of their intrinsic worth, as from a conviction that the sound common sense teachings of their author, based upon personal observations, derived from many years' experience in a sufficiently extended field of practice, will have some tendency to counteract some erroneous doctrines, and inefficient if not unsafe modes of practice in respect to many uterine complaints which prevail in our midst.

D. F. C.

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ART. XXXI.—*Oesterreichische Zeitschrift für Practische Heilkunde*—Herausgegeben vom Doctoren Collegium der Medicinischen Facultät in Wien. Redigirt von JOSEPH JOHANN KNOLZ, M. D., etc. etc. etc., und GEORG PREYSS, M. et C. D., etc. etc. etc. Wien, 1856.

THE true value and importance of medical periodicals are appreciated by but few. They constitute a medium by which information of the onward progress of the science is promptly communicated to every member of the profession. It is through their pages alone that the physician can become apprised of the several observations, discoveries, and improvements that are constantly made in every department of the healing art—increasing and rendering more certain his knowledge of the character of the diseases he is daily called upon to treat, increasing the means at his disposal for their removal, or simplifying, and rendering more efficient the application of those remedial measures with which he is already familiar.

Another advantage of periodicals, and one of no small moment, is that through their pages contributions to the general fund of medical knowledge are communicated without delay to the entire profession, so that their value can be fully tested, and such as are approved appropriated at once, without the necessity of waiting until some one competent to the task shall be prepared to collect, compare, sift, and arrange them according to the particular subject to which they relate, and thus present them to the profession embodied in a monographic form. Were it, in fact, not for the facilities afforded by our periodicals, many an important fact, observation, and suggestion, would be lost to the profession at large. The pages of our medical journals serve as a storehouse of materials, contributed by a hundred hands, for the improvement of the science and the art of medicine in all its various departments.

The perusal of medical journals, even the best conducted of them, cannot, it is true, compensate for a neglect of those standard works, whether monographic or systematic, for which we are indebted to the master-spirits of our profession; it is in conjunction with a careful study of these that the former become chiefly valuable. From the one is to be acquired a knowledge of the generally received doctrines and practical precepts of medicine systematically arranged; by the other we are informed of the modifications and improvements these are gradually undergoing, as new facts are developed, and more accurate and extended observations are made.

We cannot conceive how any one can feel himself competent to discharge his duties as a physician who never opens the pages of a medical journal. The shelves of his library may be amply supplied with the best and latest productions of the best minds in the profession, to the study of which he may devote every hour he can spare from the bedside of his patients; and yet, in his acquaintance with the actual medical knowledge of the day he will find himself on many points inferior to him, who though, perhaps, less conversant with the writings of the standard authorities of the profession, is an attentive reader of the current medical journals, and is, at the same time, competent to profit by the information thence derived.

Our own country is amply supplied with medical periodicals, several of them of a very high character, and in their copious and well arranged summaries of the facts and observations contributed by contemporary writers, scarcely surpassed. But for copiousness and variety in professional journalizing we must go to Germany. There we shall find not only those devoted to the medical sciences generally, but others restricted to some one branch of medicine, or even to particular classes of disease, as those of the eye, of women, of children, etc. etc., published weekly, monthly, half-yearly, or yearly.

These journals differ not a little in value; in many of them are to be met with communications, presenting the results of deep research and careful and extended observations, from the highest dignitaries and most reliable authorities of almost every country in which the German language is spoken.

Among the weekly medical journals of Continental Europe, the *Austrian Journal of Practical Medicine*, thirteen numbers of which now lie before us, holds a very respectable rank. It is published, every Friday, in Vienna, by the College of the Medical Faculty of that city, under the immediate editorship of two of their body, Drs. Knolz and Preyss.

It is a goodly quarto, each number containing eight pages, well printed, in the Roman character, and upon excellent paper. At the close of each quarter the thirteen preceding numbers are stitched together in a cover, with a general table of contents, to supply such as prefer the journal in this form.

Its contents are arranged in five departments: 1st. Original communications in the different departments of medicine. 2d. Practical contributions in respect to legal medicine, and medical police. 3. Proceedings of the Faculty. 4th. Selections from and notices of new books. 5th. Personal notices, appointments, deaths, etc., of physicians.

The first of the original papers in the numbers before us, is on the characters and qualifications of the nurses and attendants in the large hospitals, and the best means of securing such as are faithful and competent. The remarks of the writer are, in general, sound and practical. We entirely coincide with him in the truth of the position with which he sets out, namely, that to form good nurses they must be properly instructed in their duties and the manner of fulfilling them, respect being had, at the same time, to the *morale* of the individuals to be instructed; that in disposition, manners, and habits, as well as all their other qualifications, they should be competent "to take proper care of the sick." This communication is from the pen of Professor Helm, of Vienna.

In the next number, Professor Schuh relates two interesting surgical cases; the first, of a lad, 14 years of age, in which the professor performed the operation for lithotomy according to the plan of Celsus. The boy suffered also from a stricture of the urethra at the beginning of its membranous portion, preventing the passage of any instrument save the smallest bougie. Dr. S. decided, by one and the same operation, to divide the stricture and open the bladder, and

adopted as the one best calculated to effect this double purpose, the operation of Celsus. This was, accordingly, successfully performed.

"During the after-treatment, I observed the rare occurrence of the wound becoming incrustated with urinary concretions, so that I had frequently masses of the size of a pea to remove by means of an ear-scoop, while the entire circumference of the wound was irritated by the contact of the urine. The application of pledgets of charpie wet with vinegar was productive of some good. The vinegar, however, only dissolved the earthy phosphate; to facilitate the solution of the urate of ammonia, warm water or ammonia were found serviceable. The nitric acid was given inwardly. The incrustation and irritation disappeared entirely as the wound contracted in size, and became, at its prostatic end, so far reduced as to retain *in situ* a catheter. This being left open during the day, allowed the urine, as the patient lay upon his side, constantly to dribble through it. For a long time a fistulous opening remained in the perineum, which, finally, after a single application of the actual cautery, was removed. After a residence of six months in the hospital the patient was discharged entirely cured."

The second case was in an officer, 54 years old, who had an impassable stricture of the urethra, with numerous fistulous openings through which the urine escaped. The urethra was laid open through its strictured as well as its fistulous portions, from without, a large silver catheter was introduced, and a perfect cure effected. The details of the operation in this case are highly interesting, and the result, considering the nature and extent of the diseased condition of the parts that were found to exist, of a most pleasing character.

Dr. S. states that he had before met with similar cases in which a like operation was equally successful.

A short communication is contained in the ensuing number, from Professor Sigmund, of Vienna, in which are very briefly discussed the questions, Who are the patients and what are the diseases to whom and in which a journey to the South is to be recommended? What particular places in the South are to be made choice of in each case? And what are the precautions to be observed by the patient in respect to the journey, and during his residence in the South, in order that he may derive from them permanent benefit?

These are important questions, the full examination of which would fill the pages of a sizeable volume. In the paper of Dr. S., all that he has to say in respect to them—which, nevertheless, as far as his remarks extend, is marked by much good sense—is comprised in less than two pages of the journal before us. The subject of change of climate, as well as of simple travel, without reference to what is usually understood by a change of climate, as a hygienic or curative measure, is one demanding a thorough study on the part of every practitioner. There are few, we suspect, of those in reference to which the advice of the physician is required, upon which greater and more serious mistakes are daily committed.

In this same number, Prof. Schuh reports the history of a case of extirpation of an hydropic ovary, in an unmarried female, 21 years old. The patient, three days after the operation, died of peritoneal inflammation.

"The fatal termination in this case," Dr. S. remarks, "is evidently to be attributed entirely to the unusually firm and extensive adhesions of the diseased ovary. This, as well as other cases that have been observed, shows that the absence of adhesions can never be certainly determined before the operation, unless when the tumour is small, and exhibits such a degree of mobility that we can feel it to fall from one side of the body to the other. When, however, the tumour has become large, and existed for two years, extensive adhesions may have taken place, notwithstanding that not the slightest indication of inflammation or of pain had been experienced. All of the indications given by the English writers, as those showing the absence of adhesions, are incorrect."

In the fourth number, Dr. Lumpe, of Vienna, commences a series of remarks on the diseases of females, and their treatment, which is continued in the subsequent number. These remarks are sufficiently interesting, but present no especial points for our notice on the present occasion.

The paper of Dr. L. is followed by meteorological observations, and an ac-

count of the prevailing character of the diseases observed in Vienna, during the months of November and December, 1855, communicated by Dr. Flechner.

The sixth number presents the commencement of a somewhat elaborate paper on the hygienic treatment of tuberculosis, by Dr. Polansky, of Rosnau, which is continued in the ensuing two numbers, and is not yet concluded. In the published portion of the paper, the subject is considered under the heads of temperature, air, and food, in relation to each of which the author has offered some very admirable suggestions. In the correctness of all his teachings we cannot, it is true, coincide. The causes, nature, prophylaxis, and treatment of tuberculosis, and what have been denominated tuberculous diseases, are as yet, we are convinced, but little understood; and in some of their particulars, at least, the plans that have been proposed as preventive or curative, whether hygienic or therapeutic, are founded on grave pathological errors, or upon partial or inaccurate observations. Taken as a whole, the paper of Dr. P. will be found interesting and instructive. The grand principle to be kept in view, in the hygienic management of tuberculosis, is to place the patient permanently upon such a diet and regimen as will promote a healthy performance of digestion, hæmatisis, and nutrition, and in all cases in which tuberculation is known to exist, or is suspected, to guard with sedulous care the patients from every cause capable of inducing congestion or inflammation in the affected organs.

In the eighth number is an essay, by Dr. Heider, on the absorption of the roots of sound permanent teeth.

"The cause of the absorption of the roots of the deciduous teeth at the period of the second dentition has been the subject of many observations and numerous hypotheses. All that we as yet know, with certainty, in respect to it, is, that there exists an intimate connection between the development of the permanent teeth and the absorption of the roots of the deciduous teeth. In what, however, this connection actually consists, is not yet clearly explained. This much, however, is certain, that, at the period of the development of the permanent teeth, their enveloping sacculi become more vascular, and come in immediate contact with the roots of the deciduous teeth, and consequently play a very important part in the absorption of the latter—nay, in all probability, are the sole agents in effecting it. A renewed examination of the surface of the deciduous teeth at which absorption takes place, shows that this is always on the side that is inclined towards the advancing tooth; and that when not merely the compensatory tooth, but its neighbour, comes in contact with the same deciduous tooth, two perfectly distinct surfaces of absorption, corresponding to the points of contact of the new teeth, are presented by the former, showing that both the advancing teeth in contact with it had contributed to the absorption of its root. Another fact places the correctness of this explanation of the means by which the absorption of the deciduous tooth is effected beyond doubt. When the permanent tooth is not developed, or its development takes place in a wrong situation, the corresponding deciduous tooth is not shed, but keeps its place in the jaw in after life. This is often found to be the case with respect to what are known popularly as the eye-teeth. The deciduous teeth are consequently shed, one after the other, just in the order in which, by the development of the corresponding permanent teeth, their roots are absorbed by the latter.

"The foregoing facts have been known to dentists for some time, but much less familiar are they with the fact that the root of a sound permanent tooth may be absorbed in the same manner as the root of one of the deciduous teeth, by the abnormal development beneath it of another permanent tooth.

"In my collection I have six permanent teeth, the roots of which have been in this manner entirely or partly absorbed. Five were extracted by myself, and the persons from whose mouths they were taken remained under my observation; for one I am indebted to my esteemed colleague, N. Terzer. These teeth are divisible into two groups: the one, where the posterior root of the second inferior molar tooth was absorbed in consequence of the expansion of the crown of the adjoining wisdom-tooth; the other, in which the root of the outer incisor was absorbed by the intruding crown of the so-called eye-tooth. In all, the surfaces at which absorption has taken place present precisely the same appearance as those of the deciduous teeth, when these have been cast at the usual period. Especially is this observable in the second inferior molar

teeth. In one we have the commencement of the absorption process, in a concave semicircular depression on that part of the root which was in contact with one of the projections on the obliquely situated crown of the adjoining wisdom-tooth; in another case, one half, and in a third, the entire root is removed by the development beneath it of the dens sapientia. In all these cases, the extraction of the affected tooth was rendered necessary by the intense pain suffered by the patients, connected in one with inflammation of the periosteum of the root, and in the two others with exposure of the nerve.

"Equally characteristic is the surface at which absorption had occurred in the incisors. In one there is an oval depression on the posterior surface of the root, near the neck; and in the other two the root is entirely removed, and one of them exhibits a cavity corresponding to the point of the encroaching eye-tooth. The removal of the affected tooth, which in one case was already very loose, became necessary, in order to give room for the development of the approaching eye-teeth.

"These observations show, conclusively, that the process by which, at the period of the second dentition, the roots of the deciduous teeth are removed, is neither specific nor restricted to the first set of teeth, but that it may be called into action in the case of the permanent teeth, and cause the removal of their roots also, and that it is dependent partly upon the structure of the dental tissue, and partly upon the increased vascularity of the outer portion of the sacculi of the approaching teeth. The process has great similarity to that which occasions the absorption of the bones in consequence of the development of tumours in contact with them, and the two are probably identical."

The tenth number contains a sensible paper on eye-glasses as optometers, by Dr. Jaeger, Jun. Many judicious hints in respect to the proper selection of eye-glasses generally, so as to adapt them to the power and peculiarity of vision in each individual who demands their aid, may be derived from the observations of Dr. Jaeger. The paper is too long for us to translate entire, and we should fear doing injustice to its author by a meagre abstract of it.

An account of the intermitting fever endemic of Moldau, by Dr. Schaabner, is one of the original articles for number eleven. We find in the history of this disease, as given by Dr. S., nothing calculated to throw any new light upon its etiology, nature, or treatment.

The same remark will also apply to the account of the epidemic cholera as it occurred in Warasdiner Comitatz during the year 1855, by Dr. Mlinaric.

A very interesting history is given of a case of ruptured uterus, in which the Cæsarian operation was performed by Dr. Podbersy, of Marchegg, with a favourable result as regards the mother. The rupture occurred in the seventh pregnancy. The first two had terminated in abortion; in three, the child was delivered by instruments; and in one, she was delivered of a healthy female child after a natural labour.

Dr. W. Linhart presents, in the twelfth number, some remarks on the symptomatology of fractures of the body of the clavicle. The leading object of Dr. L., in these remarks, is to show that the depression of the shoulder on the same side with the fracture, affords no certain indication of the occurrence of the latter. The following are his general conclusions:—

"1. That the shoulder is not retained *in situ* either by the clavicle nor by the muscles alone, but also by the bloodvessels and nerves, but especially by means of ligaments and fascia.

"2. That the depression of the shoulder affords no certain indication of a fracture of the body of the clavicle, and that, when it does occur, it is dependent, not simply upon the solution of continuity in the collar-bone, but upon the rupture of the soft parts, to the extent of which it is always in proportion.

"3. That the fractured extremity of the inner fragment is always thrown upwards—the more so, as the fascia coraco-clavicularis is separated to a greater extent from the bone, and, in this case, the fractured end of the inner fragment is also directed backwards towards the supra-clavicular region.

"4. That the greater part of the displacement, in cases of fractured clavicle, is to be attributed to the elevation of the inner fragment, and not to the depression of the shoulder."

Next follow observations on Ischl's Hospital, by Dr. J. Brenner. This hospi-

tal appears to be an establishment for the cure of various chronic diseases by bathing, the internal use of mineral waters, a regulated diet, pure air, &c.

"The remedies here prescribed," says Dr. B., "are the sea-water bath, the salt vapour bath, baths made from the mud of the fens and salt mountain, and milk baths, and, inwardly, the milk of sheep, goats, and cows, fresh or sour, the water of the Maria Louisa's salt spring, of the saline sulphur spring, and the other natural mineral waters of the locality. Among the sanative measures to which the patients are subjected, are to be included the pure balsamic mountain air, mountain exercise, the residence amidst fragrant forests, and excursions into the beautiful neighbouring valley with all its romantic scenery."

Connected with the institution is a swimming school and gymnasium.

The paper before us merely presents some very general remarks on the nature of the diseases to which the several kinds of baths and mineral waters in use in the institution are adapted.

Ischl's establishment is one certainly of a highly interesting character. The nature of the peculiar remedial agents there brought into requisition, and systematically applied, according to the condition of the patients, and the nature and stage of the diseases to be removed, under the direction of skilful and experienced practitioners, caused us to feel no little disappointment when, on reading the paper of Dr. B., we found that it gave no account of the results of the treatment upon the patients actually subjected to it.

In the thirteenth number, Dr. Mojsisovics presents some practical notices on the curative powers of the thermal mineral springs of Gastein in the Noric Alps.

We shall close this notice of the journal before us, by translating entire from the medico-legal department of the fourth number, a paper on poisoning from eating unwholesome sausage meat.

"It was towards the end of the eighteenth century that the attention of physicians appears to have been first directed to the peculiar pathological symptoms resulting from a poisoning of an acute or chronic character, induced by the eating of sausages and other kinds of stale animal food. The poisonous effects have been especially observed after eating such kinds of animal substances which, to all appearance, had undergone but little change, or which, at least, had no stronger or more unpleasant smell, or discoloration, or other more decided indications of decomposition than what is termed ripe game, which is so often and freely partaken of without any bad effects resulting.

"It is a curious circumstance, that, as appears to have been invariably the case, the peculiar poisonous effects should result only from the eating of animal substances that have been subjected to a more or less prolonged cooking, and hence blood and liver puddings, especially those that have been smoked, have been found very often to produce a poisonous effect on such as partake of them.

"Although the particular change in the food upon which the development of its poisonous properties is produced is not fully understood, it has been attempted to be explained hypothetically. Thus Kerner supposed that a peculiar acid, developed by the fatty matter of the food, was the poisonous agent, but Buchner subsequently showed that the only acid found in poisonous sausages is the innocuous acetic, and that the poisonous substance upon which their noxious qualities depend, named by him pyroaesthetic ether, was more similar to the etherial oils than to an acid. Since then, it has been found to be analogous to the volatile fatty oils.

"The greatest number of instances of sausage poisoning have been observed at Wurtemberg. But the most remarkable instance on record is that which occurred at Andelfingen, in the Swiss, January 10, 1839, when, of six hundred persons congregated on the occasion of a musical festival, who had dined together in one tent, 444 were taken sick, and nine died. Of those who escaped, some had eaten none of the unwholesome food; others but a very small quantity, which was almost immediately rejected by vomiting. It is worthy of remark, that the typhoid form of disease produced, on this occasion, by eating of the poisonous viands, subsequently assumed a contagious character.

In the *Med. Correspondenzblatt* of the Association of Wurtemberg Physicians, vol. xxviii., Nos. 41 and 42, Dr. Berg, chief physician to the poor in Langenberg, gives a detailed history of poisonous effects resulting from eating unwholesome sausages, that occurred in the kingdom of Wurtemberg, April, 1855,

and which, in three cases, terminated fatally. He states that J. G. M., a peasant, of Oberstetten, made a number of blood and liver puddings out of the lungs and liver and two pitchers of the blood of an ox, purchased the preceding day, and the similar parts of a hog that had been killed on the 7th of April, and with a portion of the same material of which these were composed, he filled the stomach of the hog. These things were all completed on the same day, and hung up in the chimney to be smoked, from whence they were taken as they were wanted for the use of the family. On the 19th of April, the last of the liver puddings were eaten, with potatoes, by five grown persons and three children. Each of the former ate half a pudding, except the peasant M., who ate a whole one at dinner, and in the afternoon and at night another. The same persons partook, at noon on the following day, of sourcrout, peas, and of the sausage mixture with which the hog's stomach was filled, notwithstanding all the members of the family had been sick the preceding day. Of these, three died.

"1. A shepherd, aged 28 years, robust, and otherwise in good health. He had complained, as early as the 17th of April, of lassitude and cutting pains in the stomach. On the evening of the 19th, he experienced intense thirst, pains in the stomach, and loss of appetite. The next morning, whilst in the field, he was attacked with severe pain of the stomach, and frequent vomiting; he, nevertheless, at noon, ate of sourcrout and peas, and a small portion of the hog's stomach and its contents. In the afternoon, vomiting again occurred. For two days he had passed nothing from his bowels, and but little urine. In the evening he was forced to take to his bed. On the 22d, Dr. Wolfshofer was called to him. He discovered paralysis of the eyelids, vertigo, slightly coated tongue, hoarseness of voice, intense thirst, and great exhaustion. An emetic of eight grains of sulphate of zinc was administered, but did not operate. In the afternoon, in addition to the foregoing symptoms, there were great anxiety and dyspnœa, the voice became constantly more hoarse, and, during the last three hours of his life, the power of speech was entirely lost. His intellect remained, however, undisturbed, and he wrote upon a slate his wants. The difficulty of breathing disappeared a short time before death, which occurred on the evening of April 22.

"2. The wife of the peasant, 36 years old, in good health previously, complained on the 16th of April, of lassitude, and occasional pains in the stomach. On the afternoon of the 19th, whilst at work in the vineyard, she experienced great thirst, and, on her way home in the evening, she was attacked with vomiting, as, also, in the forenoon of the next day, in the vineyard. At noon, as on the 19th, she ate beans and salted and smoked pork. In defiance of her extreme lassitude, she continued at work in the vineyard. On the evening of the 21st she was obliged, however, to take to her bed. Dr. W. saw her on the morning of the 21st. He found her labouring under paralysis of the eyelids, dilated pupils, some hoarseness of voice, and great thirst. The mucous membrane of the fauces was reddened, there was difficulty of swallowing, and a constrictive pain in the region of the œsophagus, directly over the sternum. There was some tumefaction of the stomach, which was sensible to pressure. The bowels had been constipated for three days; the urinary secretion was suppressed; the pulse frequent and weak. A dose of castor oil was given, which produced on the next morning coloured stools, and a discharge of urine. The other symptoms were increased, the eyelids could no longer be unclosed, the iris was insensible, the voice scarcely audible, the dysphagia was extreme, the pulse was weak but not frequent, the skin of the extremities was cool. The patient complained of a sense of anxiety. The respiratory murmur was feeble, and here and there mucous râles were heard. The patient expired during the night of the 23d. A short time before her death the difficulty of respiration had disappeared.

"3d. A servant girl, 28 years old, of previous robust health, after partaking of half a liver pudding, on the afternoon of the 19th of April, experienced, whilst working in the vineyard, intense thirst, in consequence of which she drank very copiously of water; she was without appetite, and had pains in the abdomen, but neither vomiting nor diarrhœa. On the following day, whilst in the vineyard, she vomited once. On the 21st, after partaking of sour beans, she was

attacked with repeated vomiting and abdominal pains. Towards evening she was forced to lie down. There had been no evacuation from the bowels or bladder for four days. Pain of the stomach upon pressure. A dose of castor oil was followed by a stool and discharge of urine. On the 22d there occurred repeated vomiting of a yellow fluid, and portions of the peas and beans the patient had eaten. The patient now experienced vertigo, her face became deeply flushed, her pupils were dilated, but without paralysis of the eyelids, the tongue was dry and somewhat coated, there was slight redness of the fauces, and dysphagia without pain. The abdomen was soft, sensible, and tumid. The pulse tolerably full and contracted. On the 25th, a large dose of calomel was administered, and brought away greenish stools, mixed with blood and slime, and attended with some degree of straining. Partial paralysis of the eyelids now set in, with dilatation and immobility of the pupils, contraction of the features, a dry hoarse voice, dysphagia, cold extremities, anxiety, and dyspnoea, and the patient expired on the 27th.

"The post-mortem examination, in the cases just detailed, showed the following as the most constant and striking pathological phenomena. Corrugation of the skin, with dryness, and an empty condition of its bloodvessels, and those of the subcutaneous cellular tissue. Congestion of the vessels of the mucous membrane of the air-passages and lungs. Hyperæmia of the mucous coat of the intestines, often with ecchymostic effusions. Congestion of the vessels of the kidneys and urinary bladder.

"The course of the disease in the five remaining members of the peasant's family, and in four other individuals not belonging to it, who had eaten of the same blood puddings, was more favourable, and in all terminated without destroying the lives of the patients. In none of these did vomiting occur, but all the leading symptoms observed in the fatal cases were present, to, however, a less intense degree.

"All of the affected individuals had partaken of blood pudding, but the members of the peasant's, of only liver pudding; all were affected with similar symptoms, with, however, various shades of difference. The poisonous property, therefore, had become developed as well in the blood as in the liver puddings, though it would appear that in the latter it was to the greatest extent, inasmuch as in all those persons who had partaken of these severe disease occurred, while in none of those who had eaten only of the blood puddings, did any dangerous symptoms present themselves.

"The puddings are stated to have had a sour taste, and to have become much softer than they were at first.

"The symptoms observed in the cases, the history of which has been detailed, differ in nothing from those previously recorded as having resulted from sausage poisoning. They may be arranged in two groups, those of reaction and those of paralysis. To the first group appertain the abdominal pains, nausea, vomiting, diarrhoea, increased sensibility of the abdomen upon pressure, the hard, full pulse, flushed face, aversion from light. To the second group belong the vertigo, double vision, diminished power of sight, the paralysis, hoarseness of voice running into aphonia, dysphagia amounting sometimes to a total inability to swallow, costiveness, suppression of urinary secretion, cold extremities, and feeble pulse.

"The same interval was observed in all the cases between the consumption of the unwholesome articles and the development of their poisonous effects.

"From the degree of the reaction which occurs in different instances, no conclusions can be drawn as to the severity and danger of the second stage. In the early stage, the symptoms were the same in the cases which terminated fatally as in those of a milder character. It is worthy of especial remark, however, that all the patients who at first suffered from pains in the abdomen and diarrhoea recovered, while in the three patients who died, the cutting pains in the bowels and the vomiting were unattended throughout with diarrhoea.

"An examination of the remaining portions of the poisonous articles showed that some of them had become very soft, and exhaled a decidedly sourish and unpleasant smell. This change was not as evident in some portions as in others, which is an additional explanation of the reason why that all who partook of them were not equally affected."

D. F. C.

# QUARTERLY SUMMARY

## OF THE

### IMPROVEMENTS AND DISCOVERIES

#### IN THE

### MEDICAL SCIENCES.

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#### ANATOMY AND PHYSIOLOGY.

1. *Researches on the Cause of the Fluidity of the Blood.*—Dr. B. W. RICHARDSON, in a paper read before the Chemical Section of the British Association for the Advancement of Science, commenced by giving a historical sketch of the various hypotheses which had been formed to account for the fluidity of the blood and the phenomena of coagulation. He then related his own investigations, which had led him to the discovery that ammonia is a constituent of the blood, and that on its presence the solubility of fibrin, and therefore the fluidity of the blood, is dependent. The numerous experiments performed by the author were described: they may be thus briefly classified: 1. By causing the vapour arising from coagulating blood to pass through another quantity of blood, drawn as nearly as possible at the same time and from the same animal, the coagulation of the latter is suspended so long as the current of vapour is kept up. 2. By driving the vapour of coagulating blood into pure hydrochloric acid, and afterwards treating with chloride of platinum, the characteristic yellow crystals of ammonio-chloride of platinum are procurable. 3. On collecting a large quantity of freshly drawn blood in a wide-mouthed jar, and placing over it a cover, to the interior of which is fixed a slip of glass moistened with hydrochloric acid, the glass becomes covered with microscopic crystals of chloride of ammonium. 4. If fibrin removed from blood be carefully dissolved in a weak solution of ammonia, and again added to the serum and red particles, coagulation may be induced. The result arrived at was, that the phenomenon of coagulation depends essentially on the evolution of ammonia from the blood: and this gives an explanation of the modifications observed in the process of coagulation under various physical conditions. In concluding his paper, Dr. Richardson pointed out that ammonia, in combination with carbonic acid gas, is a constant constituent of the air expired in the breath. The presence of ammonia in the animal economy, and its evolution in respiration, was of interest in that it connected more closely the link that exists between the animal and vegetable worlds. But the subject was of the greatest importance in relation to the causes, the nature, and the treatment of various diseases.—*Proceedings of British Assoc. for Advancement of Science*, 1856.

2. *Contractility of Tendons.*—M. JULES GUERIN read, on the 3d of March last, an interesting memoir on this subject before the Academy of Sciences, which is published in the *Gazette Médicale de Paris*, March 8, 1856. In this memoir, the author questions the accuracy of the doctrine taught by Bichat and subsequent anatomists, that the tendons are merely passive instruments for the transmission of motion—that they are inert cords, and have no contractility. For ten years he has entertained the conviction that tendons possessed contrac-

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tility, although of a different character from that inherent in muscular structure. He thus sums up the results of his observations :—

1. *Histological Facts.*—M. Guérin long since demonstrated that, under certain determinate conditions, such as constant and excessive tension, a muscle may pass into the fibrous state, resembling, in every histological particular, its tendon, of which it now forms but a mere prolongation. Able microscopists have repeatedly found themselves quite unable to distinguish between the two. From this identity of structure he was led to infer identity of function. Moreover, he, as well as other surgeons, had observed that muscles, evidently in a fibrous state prior to an operation, the result of which was the restoration of their normal length and tension, frequently, in the course of years, or even of months, regain their fleshy condition.

2. *Pathological facts* enable us to establish directly the conclusions proceeding from the above induction. In 1840, M. Guérin first proved that tendons are susceptible of a special retraction, independently of the muscle properly so called—that is to say, that they may become and remain shortened, as a consequence of a kind of spasm limited to their sphere of action. This, besides being met with in various lesions implicating only the tendons (as in certain burns, abscesses, etc.), is of frequent occurrence, and easy to recognize in rheumatic and scrofulous affections of the joints. The anatomical character of tendinous retraction, distinguishing it from the retraction of the muscle properly so called, is the diminution of the length of the tendon in relation to the muscle, which preserves its normal length. The contrary takes place when the muscular fibre primarily participates in the retraction, or is its principal seat. The retraction originates in a lesion and pain localized near the insertion of the tendon, as in certain arthralgias, under the influence of which an attitude of the joint is assumed in relation to the action of the shortened tendons, without participation of the muscles properly so called. Such attitude has been supposed to be assumed voluntarily, in order to obtain relief from pain; but an inspection of the special directions imparted to the parts, shows that these much oftener relate to the isolated action of this or that tendon, than to the collective action of the muscles that move the joint. This retraction, as in the case of that of muscles, is but the pathological expression of a physiological property possessed by the tendons.

3. *Physiological Facts.*—The tendon of the patella is separable into two distinct portions, just as if they were separate tendons, which may be termed *infra-patellar* and *supra-patellar* tendons. It happens not unfrequently, as a consequence of disease, that the patella becomes ankylosed, or fixed to the femur, isolating from the muscular extremity of the tendon, the contraction proper to the latter. On observing what takes place in such persons, during efforts to raise the limb, we find that, at the same time, the extensor muscles of the thigh contract, the infra-patellar tendon—*i. e.*, the portion situated between the immovable patella and the tibia participates in this contraction, becoming sensibly hardened and shortened both to the touch and sight. We may, indeed, observe upon ourselves the contractions of this infra-patellar tendon during certain attitudes. If, while in the sitting posture, we place our fingers along its track, we find it become distended and hardened during every effort made to raise the leg, still keeping it at the same degree of flexion, the patella remaining immovable and strongly applied against the femur.

4. *Nature of the Contractility.*—The contractility of tendons is not identical with that of muscles, for it cannot be induced by galvanism. There are, too, other contractile organs, not excitable by galvanism, such as the *dartos*. The muscles themselves present sometimes an exceptional state; for, after saturnine paralysis, they continue to contract under the influence of the will, but are completely insensible to the influence of galvanism. By means of two experiments, M. Guérin endeavours to point out the limits of both muscular and tendinous contraction; and he considers that the latter comes into operation when the weight of the body to be moved induces resistance. Hence he terms this tendinous contractility the *contraction de résistance*, indicating thus its true experimental character, and its difference from voluntary contraction.

In another memoir soon to appear, M. G. promises to point out the physiolo-

gical consequences, and the pathological applications, which result from the facts announced in the present memoir.

3. *Anatomy of the Kidney.*—BUSCH, in a late paper (*Virchow's Archiv.*, 1855), after alluding to the investigations of Goodsir and Müller regarding the formation of secretion in cells, which burst and allow its outflow, he specially mentions the discovery by Müller, of the formation of secretion vesicles containing clear fluid and uric acid salts in the interior of the cells, which grow and occupy the whole cell eventually, and finally the granules of salts are liberated into the excretory ducts. The snail is particularly referred to. Müller concluded that only the secretion vesicles were excluded, and new ones formed by the cells. The author had observed granules of uric acid salts also between the secretion vesicle and the cell wall, and some cells also with these granules and no secretion vesicles. Hence the latter are not necessary for the filling of the cells with urinary precipitates. In almost all cases, the first amorphous granular urinary material forms before the vesicle, whose walls are formed out of the cell-contents round the partially precipitated urine. The author enters at length into the discussion regarding the chemical character of the urinary deposit, whether it be a simple acid, or a salt, and what salt; and also regarding the proof that the urine is not brought to the kidneys as a salt, and soluble, but that the cells of the gland produce it by a chemical process out of the material brought to them. He goes on to speak of the different views of the relation between the Malpighian bodies and the urinary tubes, and determines, by his observations on snakes, that they are decidedly inclosed in a capsule, being the enlarged termination of the urinary canals. The snake has the Malpighian body quite at the termination, whilst the triton only has it in a wider part of the canal; and in the snake ciliated epithelium exists at the margin, uniting the body to the tube just as Bowman described in the frog. The chief part of the wall of the capsule is lined by a polygonal epithelium, and on the free surface of the knot of vessels inside the capsule a distinct epithelium may be seen in fortunate cases, which in the embryo of the cellular matrix may occasionally be witnessed crossing bridge-like from one convolution of the vessels to another; but no connective tissue was visible between the cells and the vessels. The vessels seem to pierce the capsule, carrying a layer of epithelium before them. In general, the Malpighian vessels in the lower animals are merely windings of the same vessel, but in some, as in the viper, divisions and ramifications of the vessel existed. At least in the kidneys of snakes the ciliated epithelium is seen entering low down the tubes, provided that water is not used in the preparation. Each cell is seen, when the movement becomes slow, to have only one cilium, which moves about like a whip-lash. Ciliary movement could not be seen in the kidneys of birds.—*B. and F. Med. Chirurg. Rev.*, Oct., 1856, from *Virchow's Archiv.*, No. 5, 1855.

4. *Development of Joints.*—LUSCHKA from observation having determined that the pubic articulation was the lowest step in the formation of an articulation, conjectures that it might possibly represent a certain stage of development in other joints. Having found in the human and other foetus, that a fibrous substance enveloped the articulating cartilage, and moreover that, in the cartilage of the pubic joints, such a material was spread over its hyaline foundation (*grund-masse*), and afterwards that variously formed small microscopical projections were formed which, along with their substratum, passed into a fluid synovium; and that, finally, a cavity bounded by smooth cartilage was produced, he thought that this might be the ordinary process in the formation of all joints. He took for examination the union between the second and the seventh and intervening ribs with the sternum, and also that between the manubrium and the body of the sternum. In the above-mentioned cases, the union in early life is often by a species of continuity, and effected by means of a fibrous substance instead of by a proper articulation, which becomes lost in the cartilage-mass covering the costal sinus in the edge of the sternum. When a very small cavity exists, the cartilage of the rib and the sternum is covered with an extensive fibrillation, and exhibits on the surface turned towards the cavity, a very un-

even appearance, owing to the projection of the fibre bundles undergoing destruction, the whole of the elements in the neighbourhood of the cavity indicating a gradual and progressive process of dissolution. The substance covering the cartilage is not thoroughly dissolved, as a rule, in the development of the sterno-costal joints, since in grown-up people, almost universally, at the rib-cartilage exists a layer, at one time homogeneous, at another time more striped, from which variously formed leaf-like or branched projections are wont to grow into the cavity. That which, between the ends of the second and seventh, and included cartilages, and the sternum, exists as an exception—namely, the continuity by means of a fibrous substance—exists as a rule in the union between the body and the manubrium of the sternum. Here the union—unless it be, as it often is after the age of forty, bony—consists, almost without exception, of a fibrous substance which joins both the discs, consisting of pure cartilage. The fibrillation proceeds from the mass of the discs, without any line of demarcation, and contains, besides a number of cartilage cells, a very large amount of firm elastic fibre. The fibrous mass generally, in the instance of the second rib, is united with the angle dividing the cartilage into two facettes. Only in very rare cases is there any cavity between the manubrium and the body of the sternum. One case (a child aged two years, and also two adults) showed this. In the former the cavity was of the size of a lentil, and in the latter, of a coffee-bean—the inner surface not being smooth, but beset with leaf-like and fibrous projections growing from the sides, and sometimes almost filling the cavity. In these cases, the cavity is formed by liquidation of the originally solid connective substance, and thus the outgrowth of the remaining tissue takes place in the form of processes. Similar attempts in the formation of a joint are to be seen in what are termed “false” joints, where the connective material between broken fragments of bone, at first solid and fibrous, undergoes solution, and the formation of a thin capsule takes place: the synovia-like mass being seen to escape at times under operations. The lower-jaw articulation illustrates the normal maintenance of an earlier developmental stage. The thick elastic fibre-holding material overlying the cartilage substance, generally has a number of fine projections, which, although mainly projecting into the cavity, yet is at times partly grown together with the tissue of the meniscus. Similar illustrations are obtained in examining the connection of the ribs with the vertebræ. Over a layer of hyaline cartilage at the head of the rib, and corresponding tubercle of the rib, exists a layer of fibre substance, gradually springing from the substructure, and exhibiting in the layer nearest to it a peculiarly formed branching trabecular fibrous work, giving off forked fibres of various thickness, and finally terminating in pencil-like projections. Round spaces are thus inclosed by the mesh-work; and in the trabecular fibres, as well as in the structureless areolar tissue filling the spaces here and there, cartilage cells and elastic fibres are visible. The fine fibres radiate into the connective tissue towards the surface of the cartilage, which contains only a few cartilage cells, but many elastic fibres. With exception of the above-mentioned joints—namely, of the ribs, the sterno-costal and maxillary joints—in adults and in the natural condition there exists over the cartilages, either no material differing from their own, or only one of extreme tenuity, and free from elementary forms. Quite different is it with the fœtus and newly-born. In these cases, over the cartilages there exists a substance, sometimes fibrous, sometimes homogeneous, or only slightly striped, which proceeds from the substructure so entirely without demarcation, that it may without hesitation be considered as belonging to it, and only resulting from the development of the joint. What chiefly appears, and one of the best instances exist in the joints of the toes in the newly-born, is the variously formed outgrowths from the surface, in great numbers. In the cartilage of the hip, knee, and shoulder-joints, and others also, they are more scanty. The most ordinary form is the foliaceous. Along with the single projections, bush-like and branching forms also exist, which, like the substance from which they grow, are at one time structureless or finely striped, at others fibrillated and twisted, behaving like ordinary areolar tissue under reagents. In some are to be seen elastic fibres and cartilage cells. Those cases showing only traces of the projections, are specially interesting as

giving an insight into the formation of synovia by solution of the tissues and the smoothening of the cartilage in a complete joint.—*British and Foreign Medico-Chirurgical Review* from *Virchow's Archiv.*, No. 5, 1855.

## MATERIA MEDICA AND PHARMACY.

5. *Glycerine as a Nutrient and Alterative.*—Dr. W. LAUDER LINDSAY, in order to test the nutrient properties of glycerine—its power of increasing the weight and improving the vigour of body—used it internally himself, to the extent of two or three teaspoonfuls daily for several weeks. “For the space of a month,” he says, “I took two teaspoonfuls every morning in coffee, which I found to be the most palatable mode of using it. My diet and daily occupations were the same as before I began to take it; my exercise, in consequence of protracted bad weather, rather less than usual. The result was a gain of weight to the extent of  $1\frac{1}{2}$  lbs. at the end of the first fortnight, and of an additional  $\frac{1}{2}$  lb. at the termination of the second—in all, an increase in weight of 2 lbs. On discontinuing the glycerine, my weight gradually fell: and after an interval of six weeks, during which I have not used it, I find myself 1 lb. lighter than before I began to take it daily. It produced no other appreciable effect. I have tried it as a dietetic remedy along with various articles of food, and in divers combinations. It is so readily miscible with fluids of all kinds, that there can be no difficulty in its administration. The pure concentrated glycerine of Price’s Company is too pungently sweet to be used alone or undiluted; and I may here remark that, as a general rule, whether for internal administration, or for external application, it ought to be diluted, the degree of dilution being regulated by the practitioner, according to the purpose for which he prescribes it. I have sometimes sweetened coffee with it instead of sugar. Coffee so made, however, has a somewhat peculiar taste, which might prove objectionable to some fastidious stomachs; but when it is sweetened only partially by glycerine, or when glycerine is superadded to ordinary sugar, the beverage is exceedingly pleasant, and quite free from any peculiar flavour or taste. It might be used daily to a considerable extent, when thus mixed with coffee, or chocolate; it is perfectly miscible, and does not betray its presence by floating oil globules or otherwise. In such circumstances, it behaves precisely like a syrup. Tea, to which glycerine has been added in a similar way, is much more apt to be flavoured by it, but the taste is not likely to be regarded generally unpleasant, unless it is added to the extent of two or three teaspoonfuls per cup. It also sweetens milk or cream very pleasantly. A mixture with water is very palatable, and is, undoubtedly, its most ready and cheap mode of administration.

I carefully observed its effects, as a nutrient and alterative, in eight patients—four males and four females—to whom it was given in doses of two or three tea or tablespoonfuls daily, for the space of a month. They were weighed, at intervals, to ascertain their gain or loss of flesh; for I found that apparent physical improvement was not a reliable criterion of real physical growth—that a most marked amelioration in the general health did not always coincide with increased weight of body. All the patients, before taking it, were more or less anæmic, emaciated, and feeble; in all the diet, exercise, and occupations, were otherwise the same. At the end of the month, all of them appeared greatly improved in their general condition; they seemed plumper and stronger, and the countenance, in some, was even ruddy. In one case—a female—there was a large and fiery carbuncle over the sacrum, which was opened by crucial incision in the ordinary way; in another case—a male—there was a number of abrasions and ulcerations on different parts of the body, the result of self-mutilation by friction against walls, or by picking with his finger nails. The carbuncle, in the one case, and the ulcers and abrasions in the other, disappeared, or were healed, during the use of the glycerine. I shall

here guard myself against confounding the *propter hoc* with the *post hoc*. A most marked amelioration followed the use of the glycerine, and apparently in consequence of its use. But further experiments will be necessary to establish the accuracy of the latter statement. The comparative gain and loss in weight will be best set forth in a tabular form. Some of the patients—case No. 3 in particular—were taking little or no ordinary food; and, in these cases, the glycerine would appear to have acted as a substitutional food of an agreeable kind.

PATIENTS.		DURING FIRST FORTNIGHT.		DURING SECOND FORT-NIGHT AS CONTRASTED WITH FIRST.		AT THE END OF MONTH.	
Sex.	Age.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
No. 1.	30	...	2 lbs.	6 lbs.	...	4 lbs.	...
" 2.	23	2 lbs.	...	4 lbs.	...	6 lbs.	...
" 3.	28	8 lbs.	...	...	1 lb.	7 lbs.	...
" 4.	28	nei	ther	nei	ther	nei	ther
" 5.	52	5 lbs.	...	...	3 lbs.	2 lbs.	...
" 6.	28	...	2 lbs.	...	6 lbs.	...	8 lbs.
" 7.	30	nei	ther	...	2 lbs.	...	2 lbs.
" 8.	30	3 lbs.	...	3 lbs.	...	6 lbs.	...

This table, however, does not fairly exhibit the fattening or strengthening effects of glycerine; inasmuch as, in consequence of all the patients labouring under forms of mental derangement, there were causes constantly in operation, to interfere, or having a tendency to interfere, with the effects of the glycerine, by rapidly reducing the physical strength—such as paroxysms of mania, or fits of melancholia. I should anticipate more favourable results, or at least results more free from fallacy or ambiguity, from experimentation on the patients of a general hospital, or upon patients met with in private practice. I do not think that the fluctuations in the weight, as given in the above table, are greater than can be accounted for by changes in the mental and physical constitution of the patients—changes over which an experimenter has no control. But such experiments are necessarily on too limited a scale, and are too short in their duration, to enable us to arrive thereby at determinative results; they are only mentioned suggestively for the benefit of others who may be inclined, or have opportunity, to pursue the subject. All the patients, above mentioned, took the glycerine readily, with the exception of two, who equally refused food and medicine—the one from a religious belief that it was inherently wrong, and that he could not do so without violating his most solemn vows, and thereby doing irreparable injury to his conscience—the other merely from mischievous obstinacy. It is sometimes possible to persuade insane patients to take medicines, who resolutely refuse food; under such circumstances, the value of cod-liver oil, glycerine, or similar substances, is at once apparent. Should the therapeutical properties of glycerine be fully established, it cannot fail to become a valuable remedy—both in respect to its internal administration and external application—in asylum practice. It has already been tried with some measure of success in the Dumfries, Montrose, and Perth Asylums.

With a view to the same object—the discovery of the existence and extent of the fattening effects of glycerine on the animal body, if such there be—I have recently experimented on various of the lower animals, such as fowls, rabbits, and mice, mixing glycerine with their ordinary food. At the same time, I have made comparative or contrastive experiments on the same animals with cod-liver oil, and with common food. For instance, a cock of a cross Cochinchina breed, was fed on bread-refuse, etc., steeped in glycerine (Price's pure concentrated), and a hen of the same kind, on similar food, soaked in cod-liver oil. During the first fortnight of the experiment, the former gained fourteen, while the latter only gained seven ounces.

The following table will illustrate concisely the comparative increase of

weight under ordinary food alone, and in conjunction with glycerine or cod-liver oil. The animals were weighed at intervals of about a fortnight, and were similarly placed in regard to confinement, etc.

NATURE OF FOOD.	ANIMALS.	FORTNIGHTLY WEIGHINGS.				
		1st.	2d.	3d.	4th.	5th.
		lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.
<i>Glycerine</i> Mixed with daily food {	No. 1. Cock	3	3 14	3 11	4 8	5 8
	" 2. Hen	...	3 8	3 12	3 15	4 4
	" 3. } Rabbits	...	2 15	3 1	3 8	4
	" 4. }	...	2 8	2 11	3 4	3 8
<i>Cod-liver oil</i> Mixed with daily food {	" 5. Cock	...	3 15	4 8	4 4	4 1
	" 6. Hen	2 12	3 3	3 9	4 4	4 2
Ordinary food alone . . {	" 7. } Rabbits	...	2	2 8	2 13	3
	" 8. }	...	1 12	1 15	...	...

The glycerine was greedily licked up by all the animals, which bore every appearance of thriving vigorously under its use. In such experiments, however, it is necessary to bear in mind, or deduct from the results, the influence of confinement or deficient exercise, and of over-feeding, in fattening animals. All the animals under experiment were confined in caged, but roomy, apartments of different kinds, so as to avoid other sources of fallacy. I would suggest the propriety of instituting similar experiments on a larger scale, for the purpose of setting at rest the question, or solving the problem—whether glycerine is really possessed of fattening or nutrient properties; and, if so, to what extent these are available in medicine.

I have given glycerine internally in a variety of affections, in combination with various alteratives and tonics, such as iodine, iodide of potassium, quinia, and iron, or as the basis of expectorant or demulcent mixtures. I have found it to answer extremely well as a solvent or suspending agent, or a vehicle. All the alteratives or tonics which have recently been combined with cod-liver oil, might be administered in a much more agreeable form, if dissolved or suspended in glycerine. Such are iodine and quinia, separately or conjoined; the iodide, lactate and bromide of iron; the proto-iodide, biniodide and bichloride of mercury; the iodides of arsenic and sulphur; and the valerianate of zinc. By the majority of patients to whom it was given as a nutrient, it was much relished. Indeed, I have been importuned by one person—a female—to prescribe it for her, on the plea that she was of delicate constitution, and that the fat-producing, invigorating properties of the glycerine could not be doubted. This was probably an ingenious deduction from the fact, that some of her companions had been weighed at intervals, during a course of glycerine, and had been found to gain in flesh and plumpness. A similar opinion, in regard to its apparent fattening and strengthening properties, has been expressed to me by others who have observed its effects. Its sweet taste would probably render it a favourite with children, in prescribing for whom it is frequently necessary to consult the caprices of the palate. There are rare exceptions, however, to its general acceptability. A patient of Dr. Stirling's—a man of about sixty, labouring under chronic asthmatic bronchitis—complained, after using it in doses of three teaspoonfuls daily for ten days, that it seriously impaired his appetite, and that he felt as if "filled with oil." It was persevered in for a few days after this sensation was experienced, but it became ultimately necessary to discontinue its use.

The great advantages of glycerine over cod-liver oil, consist in its pleasant sweetness and its freedom from all disagreeable odour; in its ready solubility in, or miscibility with, ordinary fluids; in the absence of the principles, which in animal and vegetable oils, so frequently nauseate and purge; and in its

solvent and other properties, which render it so useful as a vehicle or basis for pharmaceutical preparations."—*Edinburgh Med. Journal*, Sept., 1856.

6. *Proto-iodide of Iron Plaster*.—M. ALQUIE speaks highly of the resolvent power of this plaster in the case of white swelling and lymphatic enlargements. Experiment has shown that its employment is much more satisfactory when made by combining its separate elements with the plaster, than by the introduction of the ready-formed proto-iodide. Take of iodine 1, powdered iron filings 2, and pitch plaster 30 parts. Melt the plaster gently, and add the filings, and then the iodine, previously dissolved in 10 parts of alcohol, stirring well with an iron spatula, until a greenish-brown colour is produced. It is then spread and cut into strips for application.—*Med. Times and Gaz.*, Oct. 25, 1856 rom *Bull. de Thérap.*, tome 1. p. 503.

## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

7. *The Nature of Phthisis, and particularly of the Pretubercular Stage*.—Dr. EDWARD SMITH read a very interesting paper on this subject before the Medical Society of London (Oct. 25th, 1856). After pointing out the advantages of special hospitals in the study of diseases, the object of the author was to show, 1st. That the treatment of phthisis, in order to be commonly successful, must be in the pretubercular stage. 2d. That there is a pretubercular stage, which is capable of easy demonstration, and in which treatment would commonly prevent the deposition of tubercle. And 3d. That the nature of phthisis essentially consists in a lessened inspiratory action of the air-cells of the lung. He admitted that phthisis was induced by a multitude of causes, but he affirmed that the tendency of all those is towards exhaustion, and that they, although many, have one common mode of action in inducing the disease. He criticized minutely the prevalent opinion that phthisis is a disease of blood, and proved that whatever may be the state of the blood in the disease, there is no universal condition of it which attends the origin of the disease, or which is really causative of it. The state of the system, which is one of the causes of phthisis is one of both solids and fluids, and is to be expressed rather by a general predisposition to the disease than by a specific state of a part of the system, viz., the blood, in which the elements of the disease had never been found, nor had been directly transmitted to another system. He also proved, from his own investigations, that the functions of alimentation were not at fault as causative of phthisis, by showing that the quantity of food taken in the early stage is equal to that in health: and by a reference to the feces, solids in the urine, biliary and cuticular excretions, he showed that there was no larger excretory waste than occurs in health. The lessened action of the air-cells he proved from the lessened vital capacity, feeble inspiratory power, and lessened mobility in the earliest stage of the disease; the consequent lessened vesicular murmur, harshness of respiration, and flattening of the chest, with slight dulness, indicative of atrophy of the lung. He also proved that the signs of lessened vesicular action are found in all those cases which, by common consent, are said to be prone to phthisis, and mentioned instances in his own practice at the hospital in which the vital capacity was reduced to two-thirds or one-half of the normal quantity, without there being any evidence of the deposit of solid material in the lung. This stage of lessened vesicular inspiratory action without any evidence of tubercular deposition, he designated as the first stage of the disease, and is one in which every hope of success may be entertained from suitable treatment. The second stage was that of tubercular deposition, and the third that of destruction of tissue, whether to the extent of softening only, or to the further degree of the formation of a cavity. He then proceeded to show the connection between the act of inspiration, and

the circulation through the lungs, and the importance of maintaining a balance between the systemic and pulmonic circulations, and explained the especial liability of the apex of the lung tubercles, by a consideration of the mode of action of the lung, whereby the cells of the apex must at all times be less perfectly distended than those at the base, and consequently have less circulation and vital influences. He discarded the notion of the deposition of tubercle in the lung from the blood; and, having referred to Dr. W. Addison's theory of the formation of the tubercle in the lung from degenerated epithelium, showed how readily the air-cell is rendered fit to be a receptacle of such morbid products, when its action and vital influences are lessened or lost. The extreme liability of the lungs to the deposition was not from any question of the blood, but from a consideration of the peculiar action of extension and retraction of the air-cells (as he had demonstrated) and from the immense number of such fitted receptacles as the air-cells of the lungs offered. He believed that phthisis and scrofula are distinct diseases, and that while they may be sometimes causative of each other, their co-ordinate occurrence was chiefly accidental. He also explained the occurrence of hæmoptysis before the deposition of tubercle, upon the principles now laid down, and pointed out the impropriety of any attempts to arrest it directly, and also of interfering with that degree of increased frequency of respiration and pulsation which nature sets up as a prophylactic measure when the amount of circulation in the lungs is so greatly lessened, as it is in all stages of phthisis. The discussion of the proper treatment, based upon these views, was reserved for a future occasion, but he strongly urged his professional brethren to recommend to the community the importance of a frequent examination of the chest of the younger members of families, with a view to the detection of the disease in its pretubercular stage.—*Med. Times and Gazette*, Nov. 1, 1856.

8. *Scrofulous Deposit*.—Küss considers (*Canstatt's Jahresbericht*, 1855) that pulmonary tubercle, so called, only consists in the heaping together of epithelial cells in the various vesicles of the lungs, and that all its metamorphoses arise from their destruction. In this way, he asserts that tubercle in the various glands, the intestinal mucous membrane, and the medulla of bone, &c., is easily to be explained as arising from the globules existing therein. Thus, according to him, tubercle is not a foreign heteromorphous material, but simply the results of proliferous cell elements. By Mandl (*Archives Générales de Med.*, Avril, 1855) scrofulous deposit is considered to be a crude mass, only exhibiting corpuscular and other arrangement as the result of the method in which it is torn up. He determines that it has no specific histological character, and that the fatty and shrivelled elements of reticulated cancer, and many other products, are to be compared exactly to tubercle corpuscles. According to Engel (*Prager Vierteljahrsschrift*, Buch, 1855, Band xii. p. 1), tubercle at first consists of an amorphous exudation, in which cells are formed at a later period, which gradually undergoes a fatty or calcareous change, and softens.—*B. and F. Med.-Chirurg. Rev.*, Oct., 1856.

9. *Treatment of Typhus and Typhoid Fever*.—Prof. DIETL, of Cracow, has just published an interesting paper, in which (like Graves) he advocates a nourishing and tonic regimen in fevers, instead of the severely antiphlogistic measures which had been too much in vogue. The dietetic part of the treatment he considers as more important than the pharmaceutical; and advises that, instead of combating the disease, we should strive to strengthen the patient, to enable him to overcome the attack. Good nourishment and pure air are, therefore, indispensable. He thinks that the diet should not consist of weak slops, such as tasteless beef-tea, gruel, thin milk and water, and diluted tea; and advises the diet to be fluid, sapid, and nourishing—the milk to be unreddened by water, and the beef-tea to be strong.

He considers *cold applications to the head* to be injurious, increasing the sopor without diminishing the heat; for the heat and stupor in typhus are the result of a dyscrasia, and not of a simple cerebral congestion, and, moreover, the continued cold has a paralyzing effect on the nerves and bloodvessels.

As regards internal remedies, he admits there are few of much service. He assigns considerable importance to the use of mineral acids; and gives a preference to the administration of *phosphoric acid* in frequent and moderate doses, as being more agreeable, and less likely to disturb the digestive functions.

He considers *quinine* to be a medicine of the greatest service in typhus; for, though no specific, it certainly removes many serious and dangerous symptoms, when it is carefully used. The beneficial influence which it exerts on the nervous system is very marked. When, from the tenth to the fourteenth day of the fever, we have the face becoming pale and contracted, accompanied with restlessness, excitement, rigors, subsultus tendinum, and delirium, then quinine is indicated. Its operation is so rapid and so sure, that we can reckon on a diminution of these symptoms in a few hours from its use. According to Dietl, the most restless, furious, and delirious patient becomes, under its administration, in five or six, or at most in twelve hours, perfectly calm and self-conscious—knows his friends, and gives rational answers; the hands and tongue are no longer tremulous; the hurried and often interrupted respiration becomes regular and quiet; the burning skin turns moist; the pulse is diminished in frequency; and a refreshing sleep occurs, which is the ordinary forerunner of a rapid convalescence. In order to attain these beneficial effects from quinine, the remedy must be given in large doses (at least five grains at once), and in solution rather than as pills or powders. All other medicines must be omitted also during its administration. Dietl commonly administers it thus: *R.—Quinæ sulph. ʒj; Acidi sulph. dil. ʒss; Aquæ ʒvj.*—*M.* Each ʒss of this contains five grains of quinine. In typhomania he gives ʒj—ʒij of this mixture to adults in the worst cases of nervous excitement; in mild cases he gives ʒss every two hours—continuing the administration of it until the bad symptoms have yielded. He has never seen a fresh exacerbation of the symptoms take place in cases treated thus with quinine. In severe cases Dietl has sometimes given ʒij of quinine, often from ʒss to ʒj, within the twenty-four hours, and has never seen any bad results. He advises discontinuance of such large doses whenever the nervous symptoms have become improved. The administration of quinine is frustrated, or rendered injurious, in cases where there exist the complications of gastritis, or profuse diarrhœa; for, when either of these complications is present, the quinine is not found in the blood, or in the urine, but remains unabsorbed in the stomach, or passes off in the stools. As the gastric affections are on the decline, however, the drug may be given in small doses.

*Alum* is considered useless in checking the profuse diarrhœa of fever. *Calomel*, in small doses of one-fourth to one-half gr. every second or third hour, has been found by Dietl to be very efficacious in arresting the diarrhœa, and changing the character of the stools. He justly remarks, however, that diarrhœa must only be retained in extreme cases, inasmuch as a moderate diarrhœa is often critical, and beneficial in carrying away the injurious typhus products.—*Ed. Med. Journal*, Oct., 1856, from *Wien Wochenschrift*.

10. *Diabetes cured by Proto-Iodide of Iron.*—Dr. BURGNET was consulted in the month of February last by a lady, fifty-five years of age, mother of sixteen children, who complained of having been tormented for twenty-seven years by an insatiable thirst. Her mouth was always dry; the urine abundant. Five years ago, that is to say, at the cessation of menstruation, emaciation became considerable, and the patient lost her strength; the pulse became small, but not frequent; tongue neither red nor coated; very small appetite; the urine was clear and limpid. The patient was in the habit of passing it five or six times in the night. Analysis proved the presence of sugar.

M. Burgnet commenced giving the proto-iodide of iron in small doses, which he gradually increased. From the first day the thirst diminished, the urine became less abundant, and the strength returned. On the 15th of August the urine, again analyzed, offered no trace of sugar; four months after the health of the patient continued good.—*Dub. Hosp. Gaz.*, Nov. 15, 1856, from *Union Méd. de la Gironde*, Sept., 1856.

11. *Rennet in Diabetes Mellitus*.—Dr. JAMES GRAY, in an interesting paper (*Glasgow Medical Journal*, Oct., 1856), speaks very confidently of the curative powers of rennet in diabetes. He says that he has treated twenty-eight cases by it, and asserts it to be more effectual than any other remedy.

The basis of his theory is, "that if rennet out of the body converts a solution of sugar into lactic acid, it may possess a similar property within the body. Bearing in mind, too, that lactic acid is found in the juice of flesh, and, according to Liebig, is a supporter of the respiratory process, I conceived that if sugar formed in the body of a diabetic patient could be converted by the rennet into lactic acid, it would be burned in the lungs; and that, if a larger quantity were formed than could be consumed in that way, it would be excreted by the kidneys. In this I was not mistaken, for lactic acid was more than once detected in the urine of my first two patients. To say that rennet is an infallible remedy in any or every case of diabetes, would be overrating its virtues. Where this complaint is complicated with organic disease in any organ, the organic disease must be removed before we can look for a cure. It will, at least in such cases, ameliorate the symptoms, mitigate suffering, and tend to lengthen life—the greatest desiderata after an effectual cure. I have been led, from my own personal experience, to classify diabetes under three heads:—

"1. Where the stomach is primarily affected, as has been shown by the experiments of M'Gregor (to whom I am indebted for my first clear views on this disease), and since by Bouchardat, who, as already stated, discovered a substance similar to diastase, and possessing the power of converting starch into sugar.

"2. Where the liver is primarily affected, as has been prominently brought out by the experiments of Bernard. He has shown that, besides its use in the economy as an eliminator of bile, the liver is a sugar-forming agent, and that this power rests with the tissue of the organ, which seems to act the part of a ferment on the nitrogenous fluid circulating in the body, and from which sugar is eliminated; thus one equivalent of protein, fifty-two of oxygen, and four of water may be represented by two equivalents of grape sugar, three of urea, and eighteen of carbonic acid.

"In support of such a doctrine, I may state that I have kept patients for weeks on a strictly animal diet, where not a single atom of starch or sugar was taken, and where not a particle of sugar could be detected in the feces, and yet sugar was excreted with the urine in large quantities.

"3. Where both stomach and liver are simultaneously affected.

"I am inclined to term the first diabetes gastricus; the second, diabetes hepaticus; and the third, diabetes gastro-hepaticus; and have adopted such a division the more, that it does not locate the disease in one special organ, believing, as I do, that something of truth may be found on either side.

"In diabetes gastricus, where the hydro-carbons come into play, and where uncomplicated, I believe the rennet treatment will be found eminently successful. The mode I adopt and recommend of preparing the rennet is the following: The stomach of a calf (and the younger it is the better) is gently washed with water, taking care not to injure the mucous membrane; it is then well salted, tied up, and allowed to dry. After this, it is cut up into small pieces, macerated in a pint and a half or two pints of water, according to the size of the stomach, for four days, or longer in the winter, shaking it at intervals; the fluid is then poured off and bottled; and, to test its power, a spoonful may be added to a pint of warm milk, which if it curdles, it is now fit for use. Some stomachs are better than others, in which case the preparation is much stronger and more efficacious. This depends materially upon the honesty of the party from whom the bag may be procured; for I have been told by a respectable butcher that the parties who are in the habit of selling bags for this purpose not unfrequently take a dozen or so of stomachs, macerate them with salt and water, pour off the fluid, and dispose of it to farmers for dairy purposes; the stomachs are then tied up, and passed off as genuine first-hand articles. I may also call attention to a fact, well known to dairymaids, that after a thunderstorm rennet is useless to curdle milk; thus showing that a certain electric condition of the atmosphere exerts an influence upon the fluid. A little spirits, or decoction of sparrowgrass,

may be added, to make it keep. The dose of rennet thus prepared is a table-spoonful, three, four, or six times in a day, usually about half an hour after each meal, and during the process of digestion, followed shortly after by an alkali, to neutralize the lactic acid formed. That which I recommend is the alkaline tribasic phosphate of soda; but the carbonate of potash will answer very well, either alone, or combined with the tincture of nux vomica, in five or ten drop doses. The nervous system in these cases seems at fault, and the nux vomica here serves as a stimulant and valuable tonic. In many of the cases treated, I have further recommended the inhalation of chlorine, from the power it possesses of destroying putrefaction and arresting the fermenting process. In all, I have now treated twenty-eight cases of diabetes by rennet, of which nineteen were males and nine females. Of the males were five gentlemen following no profession, two youths, one chandler, one labourer, one engineer, one wright, one ploughman, one policeman, and six farmers; females, one mill girl, three maid servants, and five domestic married females. Of these, seventeen were more or less connected with agricultural pursuits. The ages varied from eleven to sixty-five years; with three exceptions, all were in comfortable circumstances; eleven were in the habit of smoking, or using tobacco in the form of snuff; and although a few occasionally indulged to excess in alcoholic liquors, this was not by any means a general feature.

"The complications of most frequent occurrence I found to be phthisis; next, dysentery; and, lastly, anasarca, depending upon remote disease of the kidneys. The diet which I advise at first is strictly animal; and where the poverty of the patient does not permit of the free and generous use of the better quality of butcher meat or eggs, I recommend the heart, lung, liver, and kidneys to be substituted, as many good and savory dishes can be made from these organs; a soup made from the liver answers admirably in the troublesome constipation which accompanies this disease. Bread free from starch may be made as follows, according to the recommendation of Prout and Christison: Six eggs beat up, to which are added four ounces of butter; make into cakes with finely-ground bran. An excellent pudding is also made with curds, well washed, dried, and powdered—butter and eggs—which is salted and spiced to taste. Salted fish makes a good change, and does not increase the thirst so much as might be supposed. A variety of vegetables may be also given, as greens, kidney and French beans, and nettles even make an excellent dish, lettuce, artichokes, &c. As it is impossible to keep a patient for any length of time on a strictly animal diet without doing injury, I therefore add, after a little while, bran bread as found in the baker's, which I think quite equal to the gluten bread as it is made in this city, and much less expensive.

"If we consider the slow and insidious approach of diabetes, and that it generally has a firm footing before the patient is alarmed into taking advice upon his increasing symptoms, and that for weeks or months the true nature of his complaint may remain undetected even by the physician, we will not be surprised that it should take a considerable time to be entirely removed. The shortest period in which I have found sugar to disappear has been two weeks, the average from that to nine months. The importance of air and exercise cannot be over-estimated, as they are indispensably necessary to improve the general health. Hence I do not consider an infirmary a proper place for treating a diabetic patient. Attention to the functions of the skin is no less requisite, for which purpose the tepid bath, followed by friction, should be used, as also anointing the body with oil. The patient being usually melancholy, and a prey to gloomy apprehensions, it is of paramount importance to gain his confidence, and, if possible, infuse hope into his desponding heart. This the physician should know how and when to do in each respective case. In a word, nothing should be left untried which might tend either to improve or invigorate the body, or restore serenity and hope to the mind.

"Where diabetes is complicated with phthisis, I prescribe cod oil and morphine, and although I have never known such a case to recover, I have found such much benefited. I have also seen this disease follow as well as precede consumption. The preparation I have used with most success in such cases was a solution of phosphorus in chloroform, with the tincture of benzoin. Of

the twenty-eight persons treated, seven have recovered; that is to say, they have regained the weight lost, their urine was diminished in quantity to about the usual standard, and contained no sugar, and they expressed themselves as being 'fit for their work, and in as good health as they ever were.' Three died; two from disease of the chest, and the other from dysentery, complicated with effusion of pus in the left pleura; and seven still remain under treatment. Of the remaining eleven, while I have lost sight of several from the fact that they were at considerable distance from town, I hold letters from others, expressing their thanks for benefit derived from the treatment. In thirteen of those cases, organic disease, and chiefly of the lungs, could be detected. I may finally remark that only a few of those cases had not been previously under the treatment of other medical men, so that there could be no mistake in the diagnosis."

12. *Sugar in the Urine of Women in Childbed and while Nursing; and in some Women during Pregnancy.* By Dr. HYPOLYTE BLOT.—Up to the present time the presence of sugar in the urine has been considered by physicians as a pathognomonic sign of one of the gravest of maladies, diabetes. Numerous researches which I have engaged in, and which I have now the honour of bringing before the Academy, have furnished me with results which, at least in some degree, diminish the value of glucosuria as a diagnostic symptom of disease. In fact, it clearly appears from these researches, that sugar normally exists in the urine of all women in childbed, of all women while nursing, and of a certain number even during pregnancy.

I would say, in order to give more weight to the results which I have obtained, that in my investigation I have associated with myself, for the chemical part of the work, M. Reveil, Professor to the School of Pharmacy, and that in several instances I have had recourse to M. Bertholot, whose beautiful works on organic chemistry are well known. Most of the facts mentioned in the following extract have been, moreover, shown by me to a great number of physicians, and in particular to two members of the Academy, M. Rayer and M. C. Bernard.

In order to arrive at the demonstration of the fact which I announce, I have had recourse to all the means generally employed to detect sugar in a liquid. They have been used as follows: first, the urine experimented on has been treated by the test of the solution of copper and potass. The solution of Fehling has been always used, and to avoid all error, the urine has been previously treated with acetate of lead, in order to free it from the other matters which might interfere with the reaction of the test. For my later researches this mode of purification has been replaced by another still simpler, more expeditious, and one often employed by M. Claude Bernard in his experiments on glucogenesis; this consists in filtering through animal charcoal. As another reactive, I employed the caustic alkalis, potass and lime, which give with the urine a brown colour, more or less deep.

The third and principal means of proving the presence of sugar to which I have had recourse is the fermentation by the addition of yeast; and I have constantly obtained, on the one part, alcohol, easily recognized by its peculiar characters; and on the other, carbonic acid, readily absorbed by potass. I would add that I ascertained by experiment that the liquid residue of fermentation no longer was capable of reducing the copper in the solution of Fehling. Usually the process of fermentation (at a moderate temperature between 30° and 55°) took from twelve to twenty-four hours to be completed. Lastly, having slightly concentrated and perfectly discoloured the urine to be examined, I could see, thanks to the kindness of M. Bertholot, that this urine caused the plane of polarization to deviate to the right.

It thus appears that the main fact which I wish to establish cannot be doubted, viz., that sugar exists normally in the urine of all women in childbed, of all women when nursing, and of a considerable number of women during pregnancy. Since the urine of such persons presents all the characteristics which belong to urine containing sugar: 1st, reducing the copper in the cupro-potassic liquid of Fehling; 2d, turning brown when boiled with solution of caustic potash, or lime; 3d, yielding, on fermentation, alcohol and carbonic acid; 4th, causing polarized light to deviate to the right.

Let us next see in what condition this glucosuria is met with.

In all pregnant women (forty-five times out of forty-five cases examined) it is at the moment the milk secretion commences that the sugar makes its appearance in the urine in sufficient quantity to be detected. In many women it only appears at this epoch; in some it appears earlier, but usually in very small quantity.

If the secretion of milk continues, sugar continues to be passed in the urine with certain daily variations to be afterwards explained.

When the secretion of milk is abundant, the proportion of sugar is, in general, great; when the milk is scanty, the urine contains little sugar; thus an examination of the urine may serve, in some degree, to indicate the value of a nurse. If the milk secretion is diminished or dried up from any cause whatever, but especially by the development of any morbid state, the sugar diminishes, and completely disappears; if the health improves, and the milk returns, the sugar reappears in the urine. Lastly, the urine continues to contain sugar so long as the secretion of milk persists. I have found a very appreciable quantity in a woman who continued to give milk for twenty-two months. It is unnecessary to say that such persons present no symptoms of diabetes; on the contrary, that in general the better the health, the more rich in sugar is the urine.

When lactation ceases the sugar disappears from the urine; quickly in women who do not nurse, more slowly in those who having nursed begin to wean their children. In the latter, the disappearance of the sugar offers some peculiarities—thus, I have happened to find it one day and not the next, and yet detect it again on the third; but it constantly occurs that the amount of sugar is reduced to a very small proportion from the time when the tumefaction of the mammary fluid consequent on weaning has subsided. From these considerations it seems impossible not to conclude that there is a close connection between this physiological glucosuria and the secretion of milk. I have already stated that the quantity of sugar varies in different individuals, and at different periods of lactation. I now add, that it is ordinarily present in much smaller quantities than in diabetes. The quantity which I have obtained from different specimens varied from 1, 2, even up to 12 parts in 1,000.

Among women during pregnancy, sugar was detected in the urine of about one-half of those observed; I believe, though I cannot positively affirm the fact, that this peculiarity was met with when the sympathetic phenomena of pregnancy, as regards the mammæ, were very well developed; it was wanting, on the contrary, when the mammæ remained, so to speak, indifferent to what was going on in the uterus.

This passing of sugar in the urine during lactation, so easily recognized in women, I naturally concluded took place in other mammalia, and, indeed, I have observed the phenomenon in the cow. In short, in nine observations made on animals of this sort, I have detected the presence of sugar in nine, that is, in all observed. If the Academy will allow me, at another meeting I shall communicate the result of my future investigations.

Conclusions:—

1st. Glucosuria occurs in all women in childbed; in all women while nursing, and in about one-half of all pregnant women.

2d. This interesting fact is proved by the four tests already mentioned.

3d. This secretion of sugar in the urine diminishes considerably in activity, and even ceases during morbid conditions, but returns with returning health and lactation.

4th. The physiological glucosuria of women under these circumstances is in immediate connection with the secretion of milk.

5th. This glucosuria is not confined to the human female.—*Dub. Hosp. Gaz.*, Nov. 15, 1856, from *Bull. Gén. de Thérapeutique*.

13. *Presbyopia in Bright's Disease*.—M. TROUSSEAU states, that the diagnosis of doubtful cases is very often much assisted by ascertaining that there has been an increase of presbyopia, requiring a rapid increase in the power of the spectacles. Whenever we observe this, in a marked degree, we must always examine whether the patient is not suffering from Bright's disease or from diabetes

mellitus. One of these affections will be found present in the great majority of cases, at least if no hemorrhoidal flux or metrorrhagia be present to account for the change. Otherwise, we can almost always detect albumen or sugar in the urine.—*Med. Times and Gaz.*, Oct. 25, from *Gaz. des Hop.*, No. LIV.

[We have under treatment at present a case of diabetes mellitus, the subject of which complains of the increase of presbyopia, and which so far as a single cure goes, is confirmatory of the statement of M. Trousseau.—ED.]

14. *Brown Colour of Skin, with Normal State of the Supra-renal Capsules.*—MR. GEORGE MAY presented to the Reading Pathological Society supra-renal capsules, which before death were supposed to be diseased, from the brown colour of the skin, and other diagnostic signs. In January last, he was first called to see the patient, a male, 46 years of age, who had congenital blindness, but who, with the exception of slight attacks of gout, had enjoyed good health. His breathing became hurried, and he was easily fatigued, which was the more remarkable as he was accustomed to much exercise. The tongue was pale and furred, pulse feeble, and the rest much disturbed. This discoloration of the skin was most marked in the face, neck, axilla, arms, and legs. Some brown patches, about the size of a pea, were scattered over the body. He gradually got weaker; and after suffering from cough, vomiting, and diarrhoea, he died in a convulsive and comatose state. On examination after death, the renal capsules were perfectly *normal*, the kidneys small, the left ventricle of the heart dilated, and the lungs emphysematous. The twin brother, born blind also, died much in the same state, eighteen years ago.

*Remarks by the Reporter.*—The case is interesting, on account of the gastric symptoms, which, in Dr. Addison's, Dr. Budd's, and Mr. Burrows' cases, as also in others recorded, formed a prominent symptom, as also the emphysema, which was observed in Dr. Ranking's case. But the most remarkable fact in Mr. May's case was the absence of all disease in the renal capsules. Possibly the diseased appearances in the cases above alluded to, are those of tuberculosis of the supra-renal capsules. Mr. Ancell, in his recent laborious work, alludes to such a change in the structure of those parts, and draws his authority from Rokitsky; but he makes no observation on the symptoms during life. Indeed, it is strange that neither Baillie, nor Rokitsky, nor Lieuteaud, gives the smallest hint about the skin. I must say I do not think, as the case before us shows, that the connection of the brown skin with diseased renal capsules is at all clearly made out. This rare case before us, of bronzed skin, was probably one of the varieties of epichrosis, from a morbid secretion of pigment, which the skin had not previously elaborated.—*Association Medical Journal*, Sept. 20, 1856.

15. *Treatment of Chorea by Gymnastic Exercises.*—DR. BLACHE observes, that two indications should guide us in our treatment of this affection: 1. To restore to the will its empire over the muscular contractions—*i. e.* regularize the movements; and 2. So to say, reform the constitution of the patients.

M. Blache regarded the methodical use of sulphur baths as the best constitutional remedy for the affection, until he had recourse to gymnastics. The great success which attended the application of these in 1847, under the skilful direction of M. Laisné, to scrofulous subjects at the *Hôpital des Enfants*, induced the directors to erect large gymnasia, and extend their employment to various other diseases, among which was chorea. In the present paper, M. Blache gives an account of 108 cases so treated, 100 being first attacks, and 8 only relapses—an important distinction, as the ordinary duration of a case of chorea is diminished by a number of relapses. These 108 were divided into two categories, according to the severity of the disease; one of these being composed of 34 cases, of mean intensity, and the other of 74, in which the agitation was as violent as possible. The whole of the 34 were cured in a mean period of twenty-six days and eighteen *séances*; of the 74, 68 were cured in forty-five days with thirty-one *séances*. Therefore there remained but 6 cases which may be regarded as failures. These were examples of chronic

chorea, which in the end was also cured, requiring 122 days and 63 *séances*. Calculating in another mode, we have 102 cases in 39 days, and 6 in 122 days.

For the description of the procedure that is had recourse to, M. Blache takes an aggravated case, in which the movements are violent and speech impossible. Here the will of the subject being powerless, nothing can be demanded of him; and the gymnastics must be entirely passive. M. Laisné, aided by three or four intelligent pupils, fixes the patient on his back in bed, and retains him thus motionless for ten or fifteen minutes. He then shampoos with the open hand the chest and limbs for a long time, following this by brisk friction. Similar manipulation is pursued at the back parts of the body, and especially at the nape, and over the muscular masses alongside the spine. A *séance* of this kind lasts about an hour, and is repeated for three or four days in succession. An amendment in the disordered contractions is observed after each; the child evidences its contentment, and calm sleep is restored. The following days, without entirely discontinuing the shampooing, the child is taught to execute very regular and perfectly rhythmical movements. Thus, suppose the arms are hanging in a state of supination by the side of the body, the operator takes hold of them by the wrist, bends the forearm upon the arm, carries the latter directly upward and forward, and then replaces the forearm in a state of extension. The hands are now raised in a parallel manner above the head, and from thence they are brought down to their point of departure, always following a well-marked ternary measure. This manœuvre is executed a great number of times, with much regularity. The inferior extremities are submitted in their turn to analogous movements; the leg is bent rapidly on the thigh, and this on the pelvis, when both are brought into extension, following a binary measure.

It is clear that the manipulations employed must impart remarkable activity to the capillary system of the skin and subjacent tissues, and through this to the intimate process of nutrition. The movements are so combined, that muscles whose motions are synergetical are brought into regular and simultaneous action. Unable to contract spontaneously and with regularity, they seem quite passive, so that the limbs may be bent or extended without the will of the patient contributing to the effect. Indeed, this generally opposes it, and it is only obtainable by employing a certain amount of force. But after one or two *séances*, the hand of the operator is enabled to follow the contractions which come to his aid with regularity. Every day the command of the will over the muscular system is strengthened, the abnormal movements at the same time diminishing in frequency and intensity. Not unfrequently, during the first days, pains are excited in some of the joints by movements at all strong; but these, which some have considered of a rheumatic character, disappear after a few *séances*. After the employment of these passive movements for eight or ten days, very marked improvement is observed, for the child can now speak intelligibly, feed itself, and, in some instances, walk about the ward. He now joins the gymnasium, and takes part in the exercises, under the surveillance of the master or a monitor-pupil. These exercises are graduated, and have in view the production of regular and easy physiological movements of the trunk and limbs—movements in which the will and the attention are called into play as much as are the physical powers. A great number of the manœuvres are performed in common, and during their execution the master and his pupils sing an air in two or three well-marked times, according as the exercises are performed in binary or ternary measure. The little patients, ranged in groups, are led away by the rhythm and by imitation. Other exercises are individual, and executed by each child according to its strength, all having for their object the rousing the attention, and bringing the muscular contractions under the empire of the will.

The spirit of order and discipline exerts upon these children the most salutary influence. The attention, zeal, and great address of M. Laisné, aided by the means for insuring safety in the gymnasium, have prevented any kind of accident occurring. During the first ten days, the children pursue the exercises with ardour. They are desirous of doing well, and their dispositions seem to undergo a favourable change as they become more lively and open,

and at the same time more docile. The organic functions are remarkably influenced from the first, the appetite becoming very keen, and requiring a proportionate supply of aliment; the muscular power increasing, and even already some increase of flesh being apparent. From the tenth and twelfth day, this amendment is subjected to some check; and we must now support the will and courage of the patient, and the more so, because the children endowed with most courage, determination, and docility, make the most rapid progress. After some days of this resistance, renewed improvement is observed, and we may be sure that the cure will now prove prompt and radical. Whatever the future may reveal, hitherto no relapse has been met with.

M. Blache enters into a comparison of the relative efficacy of gymnastics and sulphurous baths; and although employed alone, the former mode of treatment is to be preferred, yet the combination of the two modes is often desirable.—*Brit. and For. Med.-Chirurg. Rev.*, from *Mémoires de l'Acad. Imp. de Med.*, tom. xix.

16. *Intermittent Rheumatic Contractions*.—Previously to the year 1835, M. TROUSSEAU believed that this affection was confined to nurses; but since then he has met with it in men, non-puerperal women, and children. He divides it into three forms.

1. *Benign Form*.—This is seen only in women. The patient complains of pricking of the feet and hands, and some difficulty in the movements of the fingers and toes. The fingers then become stiffened and drawn forcibly together; the thumb is brought into strong adduction, and the fingers becoming somewhat folded around it, the hand assumes the form of one holding a pen, or still better, of that of the accoucheur. The hand becomes concave, and the transverse diameter of its metacarpal portion is diminished. The spasm is accompanied by hardness of the arm and forearm. It comes and goes. Sometimes one of the upper, sometimes one of the lower extremities is affected, sometimes both of either, and sometimes all the extremities are so simultaneously. But with all this there is little pain and no general symptoms, so that the patient pays little attention to the affection.

2. *Medium Form*.—Besides these local symptoms, we have here slight febrile action which lasts for seven or eight days. There is loss of appetite, and *malaise*, but nothing serious. The contractions give rise to more pain, and recur oftener, invading the muscles of the face and pharynx, and the motors of the eye. Sometimes those of the tongue are involved, and the patient is unable to speak; but generally this is not the case at the same time that the hands and feet are the seat of the contraction. The fingers are always curved up.

3. *Grave Form*.—A young man, aged 18, was recently brought to the Hôtel-Dieu. Seized suddenly, he had fallen to the ground in a state of tetanic rigidity, the muscles of the neck, chest, and abdomen acting convulsively and curving the trunk forwards. After awhile, great distress of respiration came on, an attack of true orthopnea, but of short duration. The face was flushed, the lips were violet, and the jugulars swollen. M. Trousseau saw several of these paroxysms, all characterized by a horrible vehemence, resembling, in all respects, an attack of tetanus. No sooner had they passed off than the patient spoke with some cheerfulness, though expressing himself with difficulty. In the intervals of these attacks he was quite well, and assisted in the duties of the ward.

Generally, when the accident commences, a patient complains of pricking in the arm, and the hand becomes curved like that of a beggar. The arm is stiffened, and a severe pain like a cramp is felt, the attack not reaching its maximum of intensity for ten or fifteen minutes, by which time all the parts attacked have become invaded. The affection is distinguished by its migratory character, short duration, and by its being accompanied with moderate febrile symptoms in the mild form, and by very violent pyrexia in the severe form. When a patient has not experienced a paroxysm for twenty-four, or even sixty, or a hundred hours, it may always be reproduced by compression of the nervous trunks. M. Trousseau first observed this when, being about to bleed the

patient, an attack was induced by applying the fillet to the arm, and this was found to be always repeated upon whichever of the limbs the ligature was applied. This is an important point in diagnosis; as by compression of the nerves, as the brachial plexus, etc., the paroxysms are always producible.

Rheumatic contraction comes on suddenly, rapidly attains a considerable intensity, reaches its maximum and then declines—the period of its entire duration varying from eight or ten days to two or three months. In the latter case it is in its latent condition, *i. e.*, reproducible at will by compression of the nervous trunks. Among other causes, a violent diarrhoea may predispose to it, and during the cholera of '54, a considerable number of cases occurred. Exposure to atmospheric vicissitudes is another not infrequent cause; but the one which is most frequent and most active, is the condition of suckling. In the 12 beds M. Trousseau has at the Hôtel-Dieu for nurses, he meets with a far larger proportion of cases than in the 50 other beds for females. At the Necker Hospital, his female wards contained 36 beds for nursing women, and 40 beds for non-nursing women, and while in the former he observed 40 cases, he had only 1 in the latter.

The disease when left to itself seems devoid of danger, the febrile action alone disturbing the functions of organic life. There is, therefore, no fear for the result. Still, in some examples of the grave form, the contractions become so violent as to call for very active procedures. Persons unaware of the nature of the affection might readily, from the apparent severity of the accidents, be induced to believe them symptomatic of very grave pathological states; but the mobility and fugacity of these symptoms show that they are not dependent on serious permanent organic lesions. During the 15 years that M. Trousseau's attention has been directed to these cases, he has never met with a fatal one.

It is evident that the affection is a neurosis, and it may be ranged side by side with epilepsy, hysteria, eclampsia, and catalepsy, and is unaccompanied by any serious lesion of brain or spinal cord. In M. Trousseau's opinion, it is also rheumatic in its nature; its great fugacity, the suddenness of the attack, and the superficiality of its symptoms, leading him to this conclusion. Moreover, blood drawn presents the buffy coat as in rheumatism, and symptoms of rheumatism have in some cases alternated with the contractions.

When M. Trousseau first met with these cases, believing them to be serious affections of the brain or spinal cord, he resorted to bleeding and to cupping along the spine. These means did undoubtedly good service, and he believes bleeding a powerful agent when the general condition does not contraindicate its employment. The intermittent character of the affection led to the employment of quinine, and it was found useful, although patients become less certainly cured than by venesection. During the paroxysms, the inhalation of chloroform is sometimes of some use, for although the contractions only temporarily cease, some relief is obtained. Opium and belladonna, in moderate doses, are also of use; but bleeding and the employment of quinine, are the means that hold the first place.—*Med. Times and Gaz.*, Oct. 18, from *Gaz. des Hôpitaux*, No. lxxii.

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17. *On the Protecting and Modifying Powers of Vaccination.*—Dr. SEATON read a very interesting paper on this subject to the Western Medical and Surgical Society (Oct. 17, 1856).

He commenced by correcting erroneous notions which some entertained as to the views held by Dr. Jenner on the protecting power of vaccination, and showed that when he spoke of this as an absolute and perfect protection, he meant that it protected to the same extent and in the same manner that smallpox itself did. He regretted that the rules and cautions laid down by Jenner for the performance of vaccination should so often be departed from, and that the operation, from its simplicity, should not always have received, either from medical men or from parents, the attention due to it. Hence it was necessary, in every case of smallpox in which previous vaccination was alleged, to ascertain accurately whether the person had really gone through the vaccine disease or not. In determining the relative protection against smallpox afforded by a previous attack of the disease casually or by inoculation on the one hand, and by vacci-

nation on the other, there was also the necessity, in the former case, of determining whether the primary disease had really been smallpox, or whether the inoculation had been successful, and there was the necessity, in both cases, of being assured with regard to the present attack that it was a genuine one, and not one of the many diseases which had at different times been mistaken for smallpox. Again, the comparison must be made in classes of individuals similarly circumstanced as to age, condition of life, liability to exposure, &c. &c. These conditions were all fulfilled in the Royal Military Asylum, in which it had been shown, by Dr. Balfour, that out of every 1000 boys admitted protected by previous smallpox, 6.15, and out of every 1000 protected by vaccination, 7.06, were attacked subsequently by smallpox. This result might be looked upon as conclusive as regards children under puberty, and shows that as regards them Dr. Jenner's opinion of the equal protecting value of smallpox and of vaccination was borne out. Dr. Seaton said these statistics were further of great value in showing that smallpox after smallpox was by no means the rare occurrence it was sometimes represented to be, a point which must always be borne well in mind in any attempt to estimate the value of vaccination. There were no statistics by which the relative protection afforded by vaccination and by smallpox could be estimated with the same precision for the adult. The statistics of the army and navy were not available for this purpose, though they afforded most conclusive proof of the general value of vaccination, these forces being at times much exposed, and four-fifths of them owing their protection to vaccination. Dr. Seaton then entered into the question of the protection afforded by vaccination under circumstances of long continued exposure during epidemic influence. Having mentioned some striking facts on this subject, he gave the results of an inquiry instituted some few years ago by the Epidemiological Society as to the extent to which medical men, whose profession exposed them of course, in a peculiar degree, to smallpox, were liable to take on the disease. It appeared from the returns, that of 347 medical men protected by vaccination, 44, or 12.6 per cent., had had variola; and of 82 who had been inoculated in infancy, 3, or 3.6 per cent., had variola subsequently. Dr. Seaton cautioned the Society against accepting these statements as representing correctly the ratio in which medical men, in the ordinary practice of their profession, were liable to variola. In the first place, the inquiries had been addressed to a great many more who had not replied. Now, as variola after inoculation, or after vaccination, was undoubtedly the exceptionable case, the probability is, that in every case in which it occurred it was reported, and that those who did not reply had not suffered. This would materially lessen the percentage. Again, the inquiries were addressed to *selected* persons: the selection being, in many instances, made because of the known extent to which they were in the habit of meeting with smallpox. And, further, a great many of the cases of smallpox thus reported were cases of variolous inoculation in the dissecting-room. Making allowance for these points, the returns would, at first sight, show that under circumstances of considerable exposure, the protecting power of vaccinia was inferior to that of variola. But an analysis of the returns, with the view of determining the *character* of the vaccination relied on, gave some interesting results. Of 18 who stated that there was no cicatrix visible, 3 had had smallpox, or 16.6 per cent.; and of 32 who made no mention about the cicatrix, 6 had had smallpox, being about the same proportion. Of 235, with one or two cicatrices, 33 had had smallpox, or 14 per cent.; but of 62 with three, four, or more cicatrices, 2 only had had smallpox, or 3.2 per cent. Taking these facts in connection with the immense value of the cicatrices as an index of the efficiency of vaccination, as shown by the researches of Mr. Marson, the results are sufficiently remarkable. It does not appear that the liability to take smallpox is any greater in those having more than two cicatrices of vaccination than in those who have had previous smallpox, so far as these observations go. Granting at once that the number of observations is far too limited to allow us to draw with confidence any positive conclusion, they certainly justify a negative one, and call upon us to pause before we admit that duly and efficiently performed vaccination will not protect the system, even under circumstances of

severe exposure, to the same extent that inoculation itself would have done, as stated by Jenner. It was clear, at all events, that there was no truth in those statements, which treat of smallpox, after inoculation, as a bare possibility scarcely to be taken into account; and of smallpox, after vaccination, as a thing almost to be expected, especially after a lapse of years. In reference to the doctrine involved in this latter phrase—viz., that the protecting influence of vaccination is liable to wear out, Dr. Seaton cited various facts to show that it ought not to be accepted. The author then proceeded to consider the modifying power of vaccination; and exhibited in a table the results of various returns to the Epidemiological Society of the observations made in various epidemics, and of the records kept by Mr. Marson, at the Smallpox Hospital. He showed that the mortality from smallpox, in persons reputed to be vaccinated, was not more than 3 or 4 per cent., under favourable circumstances, nor more than 7 under the more unfavourable, while the mortality of the natural smallpox varied from 20 to 35 per cent. He gave an account of the analysis of the cases of post vaccine smallpox in the Smallpox Hospital, made by Mr. Marson, and published in his paper in the *Medico-Chirurgical Transactions*, which Dr. Seaton characterized as the most important contribution ever made to our knowledge on this branch of the subject. By these it appeared that in persons well vaccinated, and having more than two cicatrices, the mortality was less than  $1\frac{1}{2}$  per cent. It was only, the author observed, by taking in connection the protecting and modifying powers of vaccination that we could arrive at any just estimate of the real value of the discovery; and he showed from the preceding facts, that of a certain number of children vaccinated in infancy, the proportion who would at any period of life take fatal smallpox was infinitely smaller than the number who, out of a given number of children inoculated, would die from the immediate effects of the operation itself. Hence the practice of vaccination was infinitely preferable to inoculation as regarded the individual. The great objection, however, to inoculation was, that it kept alive and propagated the disease. This was the case in the present day in India, in Ireland, and other places, where it was still practised, and it had been the case in England. Hence during the last century, while inoculation was in vogue, the mortality from smallpox underwent no diminution; while since the introduction of vaccination it had steadily and progressively declined. For the ten years ending 1800, the average annual mortality from smallpox within the Bills of Mortality was 1780 in a population ascertained in 1801 to be 261,233; while the four years ending 1841, it was only 1659 in a population ascertained in 1841 to be nearly 2,000,000. Then came the Act establishing parochial vaccination, and for the fourteen years ending 1855 the average annual mortality from smallpox was but 821 in a population considerably above 2,250,000. The author then showed that by far the greater part of this mortality was unnecessary and preventable; and comparing and contrasting the mortality from smallpox in this country with that existing in other countries, and glancing at the state of Scotland, Ireland, and our colonies in this respect, he pronounced our present condition to be most discreditable to us as a nation, and especially as the nation in which the discovery of vaccination took place, and expressed his hope that when the attention of the legislature was turned, as it would be immediately, to the subject, the medical profession would make its voice heard in proclaiming the value of the practice, and the futility of the objections that had been raised, and in pointing out and supporting the establishment of a better system for securing its benefits to the entire population.

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18. *On the Communicability of Secondary Syphilis to the Female Parent, entirely through the Fœtus.*—Dr. JAS. B. BALFOUR in an interesting paper read before the Obstetrical Society of Edinburgh (*Ed. Med. Journ.*, Oct. 1856), remarks "that the syphilitic taint, once acquired, remains in the system, unless removed by proper remedies; and that the taint is communicable to the children of those thus affected, are facts well known, and fully recognized; but it is not so generally known and acknowledged, that secondary syphilis can be communicated to a female, previously healthy, and who has never suffered

from the primary form of this disease, should she become pregnant by a man whose system retains the syphilitic taint; and this syphilitic affection in her arises from the taint which exists in the system of the foetus, derived from the father; because unless she does become pregnant, the female exhibits no such symptoms—showing that the mere fact of coitus between her and her husband is not sufficient to produce the disease.

Dr. B. relates several cases illustrative of this.

The first case he mentions "is that of a young lady, who was of a strong healthy constitution, and who never had any syphilitic affection; indeed, her position and her history precluded the idea of such a disease ever having existed. She was married to a young gentleman, in good circumstances, who at the time of marriage exhibited no signs of syphilis, either primary or secondary, although subsequently, during his wife's second confinement, I learned from him, that several years before his marriage, he had chancre, and this was followed by secondary symptoms, which, however, were slight, and soon removed by medical treatment. His medical attendant informed him he was perfectly cured; and he had since then neither seen nor felt any symptom of the disease.

"For several months after marriage the young lady continued quite healthy. About the fourth or fifth month after being married, she became pregnant; and about two months after this she consulted me. She had observed for some time small scaly spots appearing on various parts of the body, and she complained of several hard swellings about the perineum, which were painful. The eruption, which was chiefly about the neck, arms, and legs, was characteristic of syphilitic psoriasis. The hard lumps, at first confined to the perineum, gradually extended to the vagina, and increased in size. There never were any sores about the parts; but she complained much of a burning sensation in the lumps, and of great itchiness. I continued to attend her up to the time of her confinement, and delayed any active treatment till after this event should be over, contenting myself with recommending palliative measures, and such remedies as would not interfere with the life or development of the foetus. She had an easy confinement at the full time, and gave birth to a fine large child, which, however, in about eight days after birth, exhibited unmistakable evidence of the syphilitic taint, and was treated accordingly with perfect success, all appearance of the disease disappearing. By the time the lady recovered from her confinement, and the lochial discharge had ceased, all trace of the syphilitic affection was entirely left, and she was so completely restored to health, that I did not deem any medical interference necessary. She enjoyed excellent health, and made a good nurse, and she continued quite free from any return of the disease for more than fifteen months, when she again became pregnant. About two months after this occurred, a train of symptoms precisely similar to the first appeared, and continued as formerly up to the time of her confinement, when they again disappeared, as on the former occasion. The second child was also syphilitic, and the same remedy, as in the first case, was employed with perfect success. When the symptoms occurred on the second pregnancy, I communicated with the husband, and told him I suspected he must be labouring under some syphilitic affection, when he stated to me the facts I have already mentioned. I at once, with his own consent, put him under treatment, with the prot. iodide of mercury, and other remedies, in order to remove any taint remaining in his system; and after his wife's recovery, I put her under a similar course of treatment for some time. Shortly after this they removed to a different part of the country, and she passed into the care of another medical man with whom I was intimately acquainted. At the husband's request, I communicated to him the circumstances which I have now mentioned. Since that period, she has been twice pregnant, and on both occasions borne fine healthy children; and my medical friend informed me that she had never had any treatment after she left my charge, and that on neither occasion had she suffered from any symptoms of a syphilitic nature, nor had the children shown any sign of the disease. More healthy looking children you will scarcely meet with.

"The next case is that of a respectable young woman from the north, who

was married to a tradesman, who had no trace of syphilitic disease at the period of marriage; but he afterwards acknowledged, that two years before, he had the disease, followed by slight secondary symptoms, which had entirely disappeared under medical treatment, and he had seen or felt nothing since. This woman complained of nothing until about three months after she became pregnant; then, however, symptoms of secondary syphilis became apparent; spots of psoriasis appeared on various parts of the body; hard knots were felt on the perineum, and on the external labiæ; and within the vagina there was a hard knotty feeling over the whole mucous surface. Her child exhibited a distinct syphilitic appearance, which was removed by the usual treatment. Shortly after delivery, all symptoms of syphilis entirely disappeared; and as she shortly afterwards removed to the country, she was subjected to no medical treatment. A few months afterwards her husband died. She subsequently married a farmer. About six or eight months since I saw her, and she has borne three children to her second husband, and certainly more healthy children I could not wish to see. She informed me she had never been under medical treatment since I had attended her, indeed she never had a medical man near her, except during her confinement; and she at the same time stated that she had never suffered, during any of her pregnancies, from anything like what she had done at the first one.

"The next case is one very similar to the first in the symptoms which manifested themselves. The young woman was of most unexceptionable character, and was married to a highly respectable young man. He had syphilis in a mild form, followed by secondary symptoms, six years before marriage, for which he had been under the care of a medical man, and he believed himself to be perfectly free from the disease, as he had been quite well since. His wife became pregnant some months after marriage, having up to this time been perfectly healthy, and free from all complaint. A few weeks after pregnancy had taken place, she began to suffer from a burning pain in the region of the perineum and the vulva. Hard lumps soon made their appearance, and some spots of psoriasis appeared on the neck and at the roots of the hair of the head and around the vagina, but none on other parts of the body. These continued in a greater or less degree till after her accouchement, when they entirely disappeared. The child exhibited the syphilitic taint some days after birth, and was treated accordingly. This woman never got any anti-syphilitic remedy; but, during the latter months of the wife's pregnancy, I put the husband under regular medical treatment, after having heard from him the facts I have mentioned. That this treatment was effectual, appears to be proved by the fact, that his wife bore a second child, and she did not suffer during her pregnancy from any of the former symptoms, nor did the child show any sign of syphilis. After this they passed from my care, and I have not been able to trace them since.

"The next case is incomplete, as I left the district before the woman was confined, and I have not since had an opportunity of ascertaining how the case terminated or how she has been since; but, as I expect yet to be able to do this, I will give the case so far as it came under my notice. Her husband, twelve months before marriage, came under my care, suffering from a severe attack of syphilis. The sores were completely cured, but he was still under treatment for the secondary symptoms, which had made their appearance, when he gave up the use of all remedies. He afterwards got married to a respectable girl, who was a stout healthy young woman, who soon became pregnant by him. About six months after this she sent for me. She was then labouring under all the symptoms of secondary syphilis. There was great swelling and hardness of all the external organs of generation, and also hard lumps, with psoriasis eruption covering them on the perineum, and distinct appearance of psoriasis on various parts of the body. She stated, that she began to find those symptoms first about six weeks after she became pregnant, but she had paid little heed to them until now. She was now, however, obliged to send for me, as she said she could hardly either sit or walk from the intense burning pain in the parts, and also the almost intolerable itching, which became worse when she went to bed, and prevented her from sleeping. I used

palliative measures with great benefit to her, but without any diminution of the swelling, or hardness, or decrease of the psoriasis; and, as I have already mentioned, I left the district before her confinement, so that I can say no more about the case at present.<sup>1</sup>

"I might mention one other case, but I refrain from doing so, as, after a minute and careful examination into the history of the wife, I learned circumstances which did not place her character above suspicion, and I would not, therefore, found upon it as any proof in settling the point under discussion. In the others I have brought forward, I am thoroughly assured that the character of the females was above all suspicion, and the syphilitic taint arose in each case entirely from the husband.

"These cases appear to me to prove clearly that although syphilis existed in the system of the husband, it was in such a condition that it could not be communicated to the wife by mere coitus—but so soon as pregnancy took place, the disease was communicated to the foetus, and after lying dormant in it for a few weeks, it began to manifest itself in the body of the mother, being communicated to her through the foetal circulation—the blood from the foetus containing the poison of the disease derived from the other parent."

19. *Pathology of Lupus*.—K. H. MONS, in a dissertation published at Leipzig, describes this affection as consisting of a true hypertrophy of the cutis, and ranks it amongst the so-called sarcomatous formations. The hypertrophy seems to arise from the division of the normal cutis cells, and not from a free and independent cell-formation. The author examined with the microscope a perfectly recent portion of tuberculous lupus of the face. The cutis was thickened and transparent, and of the consistence of fine glue. In the subcutaneous fatty tissue, some knot-like places existed, of the same character as the substance occupying the corium. The epidermis was thin. The peripheric part of the diseased places was tuberos, beset with hair, the middle portion being smooth and devoid of hair. The minute examination of the diseased tissue showed a granulated mass, beset with trabeculated areolar tissue-material, containing nuclei, round and oblong, and spindle and biscuit-shaped, and of a yellow colour, with one or more nucleoli, and having an intervening, transparent, hyaline, slightly granulated material; and the knotted parts in the fatty tissue before spoken of had the same microscopical characters as the general mass. Moreover, the latter tissue was occupied by much connective tissue, having an areolar arrangement, and containing capillaries but no nerves. The papillæ in the peripheric parts were normal or slightly enlarged, but in the central parts they were in small numbers of various sizes, flattened or lobate, and containing one or more vascular loops. The hair and the skin follicles in the peripheric parts were normal; but towards the central parts, elongated bodies, corresponding to the hair follicles, and consisting of united group-like epidermis cells, existed. No follicles existed in the middle portions. On tearing up the fibrous tissue, irregular masses were observed, of a clear granular material—so clear indeed in outline, that they were to be looked upon as cells of a round, oval, or spindle shape, and mostly of about half the size of epidermis cells, being probably formative cells of areolar tissue. Similar appearances were observed in an ulcerated lupus, but in the latter case the nuclei were larger and more numerous, and the areolar tissue fibres more scarce.—*Brit. and For. Med.-Chirurg. Rev.*, Oct. 1856, from *Schmidt's Jahrbücher*, No. 3, 1856.

<sup>1</sup> "Since this paper was written, I have seen the woman mentioned, and also the medical man who attended her during her confinement. From both I learn, that the symptoms continued unabated till her accouchement; that after this event, they gradually diminished (without any treatment), and in less than a month after delivery, every appearance of syphilis had entirely left, and she has remained ever since, and is at this moment quite free from any complaint, and in as good health as she ever was in her life. The child was syphilitic."

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

20. *Relation of Cancer to Tubercles.*—By J. Z. LAURENCE, F. R. C. S. Hanover states that, in 338 *post-mortem* examinations in the Friedrich's Hospital in Copenhagen, cancer was found combined with tubercle only three times. In 104 necropsies of cancer, Walshe observed only seven instances of tubercle. Paget gives a well-marked case. Lebert relates an interesting illustration. A woman, aged 62 years, died with all the symptoms of advanced phthisis. At the autopsy, crude and softened tubercles and vomicae were found in the apices of the lungs; the peritoneum contained many partly cancerous, partly tuberculous infiltrations. The liver also contained cancerous masses, mingled with deposits of tubercle. Dr. Carl Martius of Erlangen has accurately recorded twelve necropsies of tuberculosis of the lungs, combined with cancer in other organs of the body.<sup>1</sup> Up to the time of publication of my essay on Cancer, I had observed two cases of the coexistence of cancer and tubercle; neither of these cases were, however, very satisfactory ones; one was carcinoma of the right auricle of the heart—a dissection-room case; the second a case of colloid (on the nature of which disease opinions are still divided) of the peritoneum. In both of these genuine crude tubercles were found in the lungs. But I am now able to produce a very conclusive case in point.

CASE.—Obed O., aged 77, consulted me in September 1854, for a swelling of his right cheek, that had existed about four months before I saw him. The right malar region was considerably swollen, felt doughy, was dingy red and glossy; it was very tender, and he experienced remitting pains in the part, of a pricking and shooting character. He had five decayed teeth in front of the upper jaw, and had lost all his other teeth long before. The vision of the right eye was unimpaired. In his right nostril was an ordinary mucous polypus, which had existed for some years; this I removed. He knew not how to account for his malady. None of his relations ever had cancer, but there appeared to be a tuberculous tendency in the family. He had lost flesh; his appetite had forsaken him; his complexion was dull and earthy.

The further progress of the case may be told in a few words. The tumour increased, but never reached any considerable size, nor gave him much pain. The right eye was attacked by a chronic inflammation, and was slightly protruded; and he at last became nearly blind of this eye. He lost his sense of taste; "everything tasted alike to him." The nostril bled occasionally, often to a degree sufficient to require medical attention. His sense of smell, too, became impaired. But it was in his general health that the most marked changes occurred. He wasted to a "living skeleton," sinking with it to a degree of debility not often witnessed. He died the latter end of February 1855, about eight months from the first commencement of his disease.

*Post-mortem Examination.*—*Brain.*—Normal. *Antrum.*—Filled with a growth which reached to the very bottom of that cavity, and had completely destroyed its anterior wall and the floor of the orbit. The tumour was of the medullary species; the cut surface was firm, yellowish white, not hemorrhagic. On pressing it, a good deal of thick, white, turbid juice, exuded in small drops. I found this growth composed exclusively of cancer-cells—without exception, the most perfect specimens I have ever seen. Some were circular; others lengthened out; others again of an extreme length, and narrowed. A great many contained two or more, often a large number, of nucleolated nuclei—excellent examples of endogenous cell-formation. Exudation corpuscles and fat globules were also abundant. *Lungs.*—Upper halves of both firmly consolidated by quantities of crude yellowish-gray tubercles. A few small vomicae. No cancerous deposits. The microscopic characters of the tuberculous matter

<sup>1</sup> Die Combinationsverhältnisse des Krebses und der Tuberculose, von Dr. Carl Martius. Erlangen: 1853.

were well marked. *Heart*.—Some indurations at the edge of the mitral valve, and in the line of attachment of one of the segments of the aortic valve. Bicuspid and pulmonary valves normal. No hypertrophy nor dilatation; muscular substance firm. *Liver*.—Portal system congested. Contained a small earthy nodule. *Kidneys*.—Left one of a deep venous hue, with a small cyst in its substance. Right one healthy. *Spleen*.—Normal. *Intestines*.—Not opened; much narrowed in caliber.

Another fact worthy of attention is the different susceptibilities different organs have for the development of the two morbid states. Thus primitive cancer of the lungs is very rare, primitive tuberculosis of the lungs very common; primitive cancer of the liver is not uncommon, primitive tuberculosis of the liver is rare. And these facts may be multiplied for several other organs.

I have long been struck, when listening to the melancholy tales of cancerous patients, how often one hears that some of their relatives have died of consumption. Is there any connection between the two diseases? Are they in any way, as it were, *vicarious* to one another? If they were, the great rarity of their both occurring *together* would be at once explained. However, the materials for answering those questions are as yet too scanty and vague to allow of any positive conclusions. All I will say is, that, of 51 cancerous patients who have fallen under my own observation, I find that no fewer than 14 (upwards of a fourth) knew of a parent, a brother, or a sister, having died of phthisis.—*Association Medical Journal*, Oct. 4th, 1856.

21. *Lupoid Cancer*.—Mr. ZACHARIAH LAWRENCE read before the North London Medical Society (Nov. 12th, 1856), a paper on this disease.

He first narrated the details of four cases of the disease—a disease of the skin, which, he believed, had not hitherto been described by any author; and then proceeded to direct attention to the following specialities:—

1. *The Character of the Ulcer*.—The most marked feature is its peculiar mammillated or tuberculated surface. It does not extend to any depth; its secretion is thin; in some cases it is painless, in others attended with occasional shooting pains; it has sometimes a tendency to bleed. It is stamped by an excessive indolence. In the cases adduced the disease showed little tendency to spread; it was characterized, not by any rapid progress, but having once attained a certain degree of severity, by an obstinate resistance against any remedies employed for its amelioration.

2. *The Situation of the Ulcer*.—The nose, upper lip, palate, and cheek were the localities observed.

3. *The Subjects of the Disease*.—Mr. Laurence had only observed it in young women in whom the menstrual function was at fault. “Lupoid ulcer” is most nearly related to *Lupus exedens*, but differs from that disease by the ulcer not being preceded by the formation of any tubercles, by the peculiar and characteristic appearance of the ulcer, by the smooth (not barred) consequent cicatrix, by its greater indolence, and by the special circumstances under which it occurs.

Two authors have cursorily noticed this disease. Rayer has, at plate xii. fig. 2 of his *Atlas*, figured it with the description, “*Lupus exedens*: ulcers of the alæ and extremity of the nose, covered with fungous mammillæ, situate under the crusts.” The peculiarity of the disease evidently struck Rayer, or he would not have otherwise specially figured and specially described it. Dr. Robert Willis states, under the head of *Lupus exedens*, that “when the disease shows itself in the nose, it is not always possible to say positively that the first step in the development is the formation of any kind of tubercle.”

Mr. Norman said he had seen several cases of the disease in question; one on the nates. He considered the peculiar mammillated appearance owing to the disease commencing in the sebaceous follicles.

Dr. Garrod had seen such cases under the care of the late Dr. Anthony Todd Thompson.

Dr. Tunaley mentioned a case of the kind, in which there was vicarious menstruation from the surface of the ulcer.

Dr. Hare believed the disease to be a variety of *Lupus exedens*.—*Lancet*, Nov. 29, 1856.

22. *Pathological Anatomy of Cicatrices.* By Dr. F. HUTIN.—In this prize essay, the subject of the reunion of divided parts is pursued in detail through the various tissues, but the only portion we deem it desirable to lay before our readers is that treating of the *Pathological Affections of Cicatrices*, a subject which the author's position, as surgeon to the *Invalides*, has given him ample opportunity of studying.

In general, small cicatrices are not painful, although they are sometimes the seat of pruritus, and a troublesome sense of dryness, for which no causes can be assigned beyond the absence of local transpiration, and the imperfection of their structure. The subjects of large and deep-seated cicatrices, however, are very liable to severe pains proceeding from the inodular texture itself, or from the neighbouring tissues, and produced by the changed relations of parts, new adhesions, injury to nerves, &c. Severe lancinating pains seem to be due to certain filaments of nerves which run contiguous to the inodular substance, or terminating with more or less swelling near its circumference. The pains are always aggravated in wet and stormy weather, and the patients complain of a sensation as if the cicatrices were tense or swollen; but the most careful measurement detects no difference. These sensations disappear if we cover the cicatrix with wadding or other warm substance, while they persist if we cover the surrounding parts and leave the cicatrix exposed. When adherent cicatrices are situated over very movable parts, the movements induce tractions that are very painful; and if there be osseous inequalities beneath, ulceration or laceration of the cicatrix may occur.

Cicatrices may easily become the seat of inflammation, and an erythema may readily pass into ulceration; while, if the inflammation be severe, gangrene may result. After a certain period, only rare capillary vessels ramify through the inodular tissue, the vessels which traversed it at the time of its formation having become converted into fibrous cords, so that the finest injection does not penetrate. This operates as some protection against inflammation. We find varicose veins ramifying in extensive cicatrices, although, for the most part, they are seated beneath the cicatricial tissue, through which they are visible. Oedema sometimes raises cicatrices as it does the rest of the skin, although less easily when there are adhesions. Ecchymosis is also met with, but rarely without excoriation. Cicatrices may be the seat of hypertrophy, and M. Hutin gives an account of the dissection of one, resulting from an abscess in the thigh, which had been submitted to pressure during the occupation of a shoemaker. It was a simple hypertrophy, in which the surrounding skin did not participate, the cicatrix being triple its proper thickness, projecting a centimètre above the level of the skin. Hypertrophy of the neighbouring skin, as in elephantiasis, may sometimes extend to the cicatrices, but in other instances does not do so.

Sometimes cicatrices become covered with small conical or nipple-like elevations, which in consistence and colour much resemble corns, and, in certain cases, large, hard, and lamellated, present some analogy to horns of the skin. They are, however, but the result of dirtiness and prolonged pressure, occurring especially in cicatrices possessed of depressions and furrows, in which epidermis, dust, and other bodies accumulate and become adherent to the skin through the agency of its transpiration. The projections are not implanted in the cicatrix, but adhere to it, and fall off at various periods, from some weeks to a year. Cleanliness is the remedy. In other persons, however, really adherent eminences are seen, and are true excrescences from the cicatricial tissue, or they may arise from the surrounding normal parts. Indeed, it is very rare to meet them on the cicatrix, without any participation of the skin. Sometimes, again, cicatrices serve for the implantation of horny substances of various forms, which sometimes acquire a large size. Two examples are given by M. Hutin, in one of which the horn, of a spiral form, was ten centimètres in length; and in the other, reached a length of five centimètres, with a base of three. Usually, however, these horn-like substances are of much less size, always being hard at their free extremity, and becoming softer as they approach the point of implantation. The especial seat of those of a small size seems to be the extremity of the stump after amputation, and chiefly amputa-

tion of the thigh—the cicatrix in these cases being subjected to much and constant pressure.

The author has twice met with the *warty* affection of cicatrices described by Hawkins. In the first case, the growth was the size of a small nut, and resembled the warts observed on the fingers. The other more resembled fungus hæmatodes, and grew from a portion of the cicatrix of a large ulcer of the leg; seeming, however, more intimately united to the surrounding skin than to this. The author only made a transient examination of this growth; but he suggests that both it and the examples described by Hawkins may be varieties of cancer. The latter and other malignant diseases sometimes attack the cicatrix, and especially when this is large, and situated on the lower extremity. The most curious and rare accidental production M. Hutin has met with, was a kind of *keloid*, in the person of a soldier, who, at the age of twenty-six, received (November, 1839) many blows with a yatagan on various parts of his body, one of these striking the left ear, and another the point of the left shoulder. While reparation of the last two wounds which resulted was going on, vegetations sprang from the bottom, which were mistaken for ordinary granulations, and were kept down by nitrate of silver. In forty days the wounds were quite closed, but the vegetations, covered with epidermis, continued to make progress, and after awhile they became so large and troublesome, that M. Gimelle removed those of the shoulder in 1842. Those of the submastoid region were removed in 1843. These excrescences were reproduced with the same activity in the new cicatrices, while nothing of the sort was observed in those of the thirteen other wounds. The excrescences still remain, although somewhat diminished in size, the result of the operations of nature, after the failure of every application. *Cysts* of various kinds not infrequently are developed on cicatrices, but they are rather formed at the expense of persistent or neighbouring sebaceous follicles, than of the nodular substance itself. In old cicatrices, especially when large, *cartilaginous and osseous deposits* may occur. Ossification is of more common appearance than is that of accidental cartilage. A cellular layer, a kind of periosteum, surrounds this bony deposit, the existence of which is only demonstrable after maceration, and its function as periosteum is problematical.

Slight and oblique *contusion* may do little mischief to a cicatrix, but when this is violent, it almost always leads to ulceration. In all cases, there is a tumefaction and thickening of the tissue, due to the effusion of fluid. The cicatrix is easily destroyed, either wholly or in part; and then the tissues which it had retracted separate again by their own elasticity and muscularity. Ulceration takes place rapidly in inodular tissue, so that the wound may speedily resume its original dimensions. The secondary reparation is much slower, and its different phases are liable to interruption by various accidents. Inflammation and rupture of cicatrices, as a general rule, are more likely to occur at an early period of their formation. This depends upon their retractility being more active, and their organization less complete; while the surrounding textures, still nearly approaching a pathological condition, are very susceptible of undergoing alterations. At a maturer stage, the cicatrix will acquire a greater power of resistance. But when it is thin, when it covers an extensive surface, and when there is much loss of substance in parts subjected to frequent or extensive motion, we occasionally find an old cicatrix giving way as a consequence of slight external violence. The wounds of cicatrices made by pointed instruments of small size are not of much importance; and thus we daily find healing without difficulty the bites made by leeches, and the punctures made by a needle or a lancet, though these may traverse the entire substance. The action of a cutting instrument, applied to a large surface, is less inoffensive, reparation then requiring more care and time. Healing by the first intention is observed every day; and certainly the excessive care some surgeons take in avoiding old cicatrices is far from being always justified. Still, as this mode of reparation is sometimes defective, it behoves the operator to avoid such cicatrices as far as possible. If suppuration occur, it is very rare that the old cicatrix is not entirely destroyed, and that especially in the case of wounds from contusion or fire-arms. The ordinary phenomena of

wounds of cicatrices are always more energetic than in the solutions of continuity of other tissues.—*B. and F. Med.-Ch. Rev.*, Oct. 1856, from *Mémoires de l'Acad. Impériale de Méd.*, tom. XIX.

23. *Treatment of Carbuncles and Boils.*—Mr. JOHN HIGGINBOTTOM states (*Lancet*, Nov. 29, 1856) that during the first twenty years of his practice, he pursued the following mode of treatment of carbuncles: First making a free incision through the whole substance of the carbuncle, he afterwards applied a common poultice for a few days, until the surrounding inflammation had subsided, and then daily applied the resin ointment. He paid particular attention to the digestive organs, prescribing ipecacuanha emetics, aperients, simple diet, and pure air.

During the next twenty years, he pursued the same practice, with the addition of the application of the nitrate of silver, or lint imbued with it and dried, over the surface of the ulcer and surrounding inflamed skin, instead of the resin ointment, and then a poultice.

During the last six months he has been greatly interested in the effect of the treatment proposed by the late Dr. Physick, of Philadelphia, by the hydrate of potash, substituted for the knife, a practice which prevents all loss of blood, an object of great importance when the carbuncle is very large, and the patient old and weakly. This method of treatment, he says, would have been very desirable in the case of a large carbuncle, of no less than seven inches in diameter, which I had occasion to treat many years ago. The patient was a publican of great obesity, of a pale, unhealthy aspect, and could ill bear the loss of blood, and the case had been greatly neglected.

Mr. H. gives the following details of the result he has obtained by combining the plan recommended by Dr. Physick with that by the nitrate of silver.

"An old man of eighty-four years of age had a large carbuncle situated on the outer side of the left thigh; it was proceeding very rapidly, and was attended with much pain and surrounding inflammation. I first applied the nitrate of silver as in external inflammation, on and beyond the whole hardened and inflamed surface, round the carbuncle; and then the hydrate of potash freely on the sieve-like surface of the carbuncle, and over it a piece of lint; and lastly, over all, a common poultice, which should be renewed every eight hours. I prescribed a gentle aperient, and directed a plain, simple diet. The progress of the carbuncle was immediately arrested, and the inflammation and hardness had disappeared on the fourth day, the period the nitrate of silver also loses its effects on the skin. The slough separated in about a week, and the ulcer healed in about five weeks.

"The effect of the hydrate of potash in destroying the substance of the carbuncle is admirable.

"I may add, in conclusion, I have often used the hydrate of potash in diseased growths with great advantage, and, with common care in the application, it does not injure the surrounding skin; indeed, I have remarked the complete destruction of the diseased growth, leaving the surrounding skin in a healthy state.

"The difference of the effects of the nitrate of silver and of the hydrate of potash is very manifest in the case of carbuncle, the former being a *preservative*, the latter a *destructive* agent. This distinction being all important.

"In the incipient state of both boils and carbuncles, before the skin is broken, the application of the nitrate of silver, applied as in external inflammation, will often arrest their progress.

"During long experience I have never prescribed alcoholic stimulants, and I have not seen a fatal case of carbuncle. I have found it much better and safer to pursue the plan of inducing a healthy state of the digestive organs. Where a tonic is required, quinine, with compound infusion of orange-peel and dilute sulphuric acid, is the best."

24. *Forms of Local Injuries justifying the Amputation of a Limb.*—Mr. F. C. SKEY, the eminent surgeon of St. Bartholomew's Hospital, offers (*Lancet*, Oct. 11th, 1856) the following interesting practical remarks relative to the question

of amputation of limbs for local injuries. "This is," he remarks, "perhaps, the greatest of all questions, for it involves serious and permanent mutilation of the body; and, of all subjects of operative surgery, it is that which demands the most deliberate judgment, the highest standard of professional morality, and the broadest and soundest views of the vital forces of the body.

"I am persuaded that in proportion as we study disease, and make ourselves familiar with the curative resources of Nature, the greater will be our faith in her power of reparation, and in her desire to exercise it.

"If we compare the present with the past, it will not be denied that the conservative principle has gone forth. Injuries that formerly condemned a limb to immediate amputation are now found to be amenable to treatment. Can we suppose ourselves to have reached the goal of perfection in our judgment? Is there nothing left for us to learn? Take the hospitals of the metropolis. Is the knife resorted to in an equal proportion of cases, in all? How stands this question in the provinces? Within four years of the present date, a provincial hospital containing less than one-fifth of the number of patients who sleep every night in St. Bartholomew's, recorded a larger number of amputations within one year than were performed within the same period in the great metropolitan hospital; and when to this description is added the fact, that the hospital in question is situated in a strictly rural, and not in a manufacturing district of England, I may well ask, Where is the standard of surgery by which we are guided in the amputation of limbs? In truth, there exists no standard; and the consequence is, that the limb which is preserved in one hospital or in one locality, is amputated in another. Now, this is a grievance which may be fairly urged against the surgical profession by that large community for whose benefit we profess to have ascertained and adopted the most eligible means of curing diseases and of relieving the consequences of local injuries. It is doubtless a question of difficulty, which can only obtain a solution through the medium of experience. But the means of obtaining this experience are denied to the individual, and can only be obtained in the aggregate. And hence the inconsistency of professional practice, the cause of which forms a very legitimate subject for examination and inquiry.

"It would appear to arise from various causes operating upon the mind, and hence determining the conduct of the operator: The first, and perhaps the most impressive in its influence, consists in the different degree of reliance placed by different surgeons on the power and resources of Nature in the cure of diseases. Men adopt different views of the power of the curative art. With some it holds the relation of a *vicegerent*; with others, of a *handmaid*. Our minds are not universally impressed by the conviction, that Nature cures diseases, and not we; and that the province of the surgeon, beyond which he cannot step one foot, consists in removing obstacles in her path. If this wholesome fact were impressed more deeply on the professional mind, would it not instinctively lead to a closer observation, and of necessity to a higher appreciation of her powers? At a period as late as half a century back, amputations were at least three times more frequent than at present? Why are they now less frequent? Not because severe injuries are wanting, or that diseases have proved universally tractable, but because by the study of physiology we have become, comparatively speaking, familiar with the power which Nature wields, and by the observation of the greater resources of the body than were known to our grandfathers.

"Secondly, because I do honestly believe there to exist a higher tone of feeling in the professional mind, a higher appreciation of the value of human life, and a truer sympathy with human suffering. I believe also, that a very general observance will corroborate my own impression, that, as a rule, the greater the experience of the surgeon, the fewer the operations, and, as a necessary inference, his greater reliance upon Nature. I am quite convinced, that these powers have yet to be fully ascertained; and, when tested by the few, they will eventually be acknowledged by the many. This progress of medical opinion is elaborate and slow, but it is not the less sure.

"Thirdly, because we have identified our opinions with what I believe to be most erroneous views propounded by our forefathers on the subject of what were

termed secondary operations. The theory of this almost universal law of surgical practice is this: that it is better for the constitution to bear one shock than two; and no reflecting man will deny it. It therefore resolves itself into the necessity of an immediate decision—'Now or never.' 'Now' saves life, but at the expense of a limb; 'Never' risks life, and it is our first duty to preserve it. But this well-sounding theory, although it proclaims truth in the abstract, does not proclaim truth in the application. It is true to the letter, not to the spirit. The exceptions to its application are infinite; strictly speaking, it only applies in full force to cases of extreme injury, such as large contusions, crushings, or lacerations of the limbs, recovery from which is beyond hope or appeal. Consequent on such destruction, the constitution must necessarily sink; and the earlier the amputation, the more probable the recovery, because collapse of the vital powers is the certain issue, and reaction is impossible.

"And here let me ask a question not inapposite to the purpose—After what period of time from that of the injury may an operation be undertaken which brings it within the category of the law? At the expiration of how many hours is a primary converted into a secondary operation? By *immediate amputation* I understand the removal of a shattered limb as practised on the field of battle, when the sufferer is removed to the rear for that purpose. But if several hours elapse, do we still retain the term 'immediate amputation?' We make no distinction between an interval of one hour and a quarter of a day, on which distinction everything depends. If, then, we lose by distant absence from the case (a very frequent condition of things), the advantage of immediate amputation, is it not an additional element in favour of the treatment which appeals to Nature, and which calls upon her to put forth her powers of restoration? Mr. Abernethy used to dwell with much force upon the curative powers of the constitution in cases of compound dislocation of the foot at the ankle-joint. He related three examples of this injury, which he treated successfully after condemnation to the knife by other and eminent surgeons. Had Mr. Abernethy's experience been greater at that period of his life, he would not have made these the only exceptions to a rule that requires far larger limitation.

"Several years since, a boy was brought into St. Bartholomew's Hospital with his hand much crushed by a carding machine. The integuments were torn from the back of the hand, and the tendons exposed. The greater part of the palm was also denuded. The two first phalanges of the index and middle finger were dislocated, and the two others fractured, and all were more or less contused and blackened. The boy was aged about fourteen, and was healthy. I may say that I was somewhat urged to amputate the boy's hand. One thing was quite clear, there was no necessity for immediate amputation. I therefore ordered the limb to be put on a single splint, after I had replaced as well as I was able all the dislocated structures. At the expiration of a fortnight the integuments had all separated. Amputation was again suggested, but 'respectfully declined.' Had there been any danger to this boy's life, it had manifestly passed away. One by one the fingers came away, excepting the thumb, which was uninjured, and one joint of the index-finger. I watched the gradual though slow development of new integument, which formed perfectly over the entire hand, and he left the hospital in five months with a most useful fragment of a limb, that he has since by education rendered subservient to many important duties in life.

"In April last, a man, aged fifty-two, was brought into the hospital with dislocation of the left arm at the shoulder-joint, and extensive laceration of the integuments over the lower half of the forearm. The styloid process of the ulna was also knocked off. Three hours elapsed before I saw him. The character of the injury and the general aspect of the limb were such, as I thought, would justify amputation, upon other reasoning than such as influence my mind in the treatment of this and similar injuries. The arm had been reduced by my house-surgeon, Mr. Hodgson. There was no evidence of collapse or prostration. The structures were carefully replaced and covered with cotton-wool, and the arm was laid on a well-padded splint, and I determined to watch the course of events. A first and second week elapsed without any alteration justifying amputation. I fed the man well, gave him wine and brandy, and

small but repeated doses of opium. The integuments sloughed largely on the back of the arm, but his hand was warm and healthy, and he had power of motion in his fingers. Granulations formed largely on the exposed surface. The man ate well and slept well. He had a good pulse, and no pain in the limb, and at the expiration of a month he appeared safe. The wound was now cicatrizing all around. In the fifth week he sank from some cause I could not ascertain, and died.

"Possibly this case may be cited as favourable to the doctrines of immediate amputation. Who, let me ask, would not willingly postpone the removal of a limb on a guarantee of five weeks' healthy progress?"

"A boy, aged twelve, sustained a severe laceration of the right hand. The integuments on the back of the hand were torn down, and the muscles of the thumb rent asunder. Nearly the same amount of injury affected the palmar surface. I determined to postpone amputation until it became imperative. The limb was placed on a splint, and covered with cotton-wool. The boy was thoroughly well nourished, and he has recovered, retaining a serviceable limb for life.

"In all these cases, I am decidedly of opinion that amputation would have been resorted to but for my own greater reliance upon Nature than others around me, and this alone saved the two, while the third case can hardly be adduced as an exception.

"It would be well for the cause both of humanity and of science, if it were possible to draw a definite line, which should determine the confines of reparative power; but it is the very impossibility of doing so which appears in some measure to justify so wide a range in the practice of different surgeons. That there is a line, obscure to our senses though it be, will hardly be disputed by any one who has deemed the fact worthy of remark, how common is the resort to the knife in some districts compared with that of others. And the difficulty of decision is unquestionable, such is the complication of the requisite inquiry. Notwithstanding which, some approach may be attempted to a more general rule, founded on the nature and extent of the injury, than has hitherto guided the hospital surgeon in his decision, although the question of local injury will be subject to large modifications, founded on that of age, sex, the character, and condition of constitution of the affected person.

"These examples may be divided into—first, such as *require* amputation; secondly, such as *justify* amputation; and, thirdly, such as neither *require* nor *justify* amputation. One word on the definition of the term '*justify* amputation.' To justify may be not to give the reality, but the appearance only, of justice; to obtain the sanction of the world. A man may obtain the warrant of general opinion while he fails to possess his own. He may be safe from comment or criticism, while he is amenable to denunciation *in foro conscientiae*. By the term '*justify*,' I mean that warrant in favour of the removal of a limb which is obtained from the consideration of an injury placed on the confines of necessity, especially if occurring in early life, in advanced age, or in impaired constitutions.

"Of the structures entering into the composition of a limb, one and all of which are the subject of rupture or disorganization, the first importance perhaps justly attaches to the arterial system; but as universal experience teaches us that the channel of the main artery may be suddenly obliterated without danger to the vitality of the limb, so in the rupture of the main arterial trunk, evidenced by the pulseless condition of the limb below, the injury is, *per se*, no warrant for amputation. But if, superadded to the rupture of the main artery, the muscular system at the seat of injury is largely contused or ruptured, and the collateral channels for arterial as well as venous blood are involved in the injury, it is more than probable that the limb will quickly fail in nourishment, the indication of which is obtained from the loss of temperature. This loss, if complete, will become apparent in the course of an hour or two. But the loss is rarely complete, and several hours, or even a day, may be required to determine the affirmative of the mischief done, on this evidence. But it is all-important evidence, and fully justifies the postponement of the decision.

"Next in importance to arteries, and in close relation to them, stands the

nervous system; and in reference to injury to the chief nerve or nerves the same remark will almost apply. We do not amputate the leg because the sciatic nerve is rent asunder. The true principles of surgery would dictate a pause—a period for watching and observation. But as the rupture, whether of artery or nerve, is commonly a matter of uncertainty, we can only judge by consequences, and for these we should wait.

“To justify amputation, from rupture or laceration of the muscular system of a limb, the injury must be very great, because the constitution does not sustain a shock in proportion to the extent of the injured surface, supposing the integuments to remain unbroken: but if the muscles be largely torn, and the investing integuments detached, and not susceptible of entire, or nearly entire replacement, I confess such an injury would justify a doubt as to the power of Nature to restore the parts to health. I speak of very large laceration, with contusion of muscle, coupled with separation of integument and extravasation of blood.

“I do not concur with many surgeons, who deem exposure of the cavity of a joint an important element of failure. I am quite aware that it is so generally deemed, and I recall to my recollection the early part of my own professional life, when a compound dislocation of a joint alone was deemed a warrant for the amputation of a limb. But I can bear witness to many cases of recovery as regards the limb, and a few of recovery to the joint itself.

“Undue importance appears to me to be attached also to fracture into a joint, as though such fracture, in reference to the retention of a useful limb, raised a serious obstacle to recovery. That it places the joint in jeopardy I readily allow, but I do not believe that the advocate for amputation in any given case can derive from its presence an argument of great force, although I do not deny that it should always be considered an aggravation of the mischief done. The same remarks will apply to fracture of the bone, especially if comminuted, when superadded to the larger injury of rupture of the main artery, or of the main nerve, extensive rupture of muscles, or laceration and disorganization of the integuments.

“I have never yet observed much advantage to accrue to the patient from the introduction of the finger through an opening in the skin, which is employed as an explorer, and carried round in all directions, for the purpose of ascertaining the nature and extent of the injury done. I have never, myself, acquired much knowledge by this process, which could be rendered available to the service of the patient, nor have I known it to be obtained by others. To the patient himself, so far as he is entitled to an opinion, it has always appeared to be positively objectionable. To be sure, it gratifies curiosity, though at some expense of suffering.

“Finally, in all doubtful cases, I would give the benefit of the doubt to the patient, and endeavour to restore the limb. If, consequent on a large injury to the leg or thigh, upper arm or forearm, the foot or hand lose their natural warmth, amputation is the only resource. If we find extensive laceration of muscles, with extensive separation of integument, and especially if the integument be disorganized and insusceptible of replacement, I fear we must amputate, even without waiting for the above evidence of loss of vitality in the extremity; but, in a subject moderately healthy, I do not consider that any degree of comminution of bone or laceration of muscles, unless very extensive, any fracture into a joint, or compound dislocation of a joint, can justify the abandonment of the case, so long as the structures are capable of some general replacement, and the patient can submit without suffering to the restraint necessary to his recovery.”

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25. *Difference between the Mortality after Amputation for Injuries and Diseases.*—In our July No., p. 242, we gave a report of a paper communicated to the Royal Medical and Chirurgical Society, by Mr. Hussey of Oxford, containing a registry of 164 cases of amputation, which were performed in the Redcliffe Infirmary. Mr. JAMES, Surgeon to the Devon and Exeter Hospital, has made (*Med. Times and Gaz.*, Nov. 1, 1856) some interesting remarks on an

important part of that paper, viz: "The great relative amount of mortality after amputation of the thigh for injuries, and the cause or causes thereof.

"Of this great mortality," he remarks, "there can be no question, although it singularly differs under circumstances which appear very similar. Thus, Mr. Erichsen is reported to have stated that 'he believed not a single case had proved successful either in the French or the British camp,' leading to the total abandonment of the operation. Such also appears to have been the case in the Seven Years' war, when Bilguer interdicted it in the Prussian army; nearly such was the case in Paris after the great conflict in 1830; while, on the other hand, Mr. Guthrie gives a widely different result as regards the experience of the Peninsular War,' and it might be supported by many others, showing that, large as the mortality undoubtedly is, and much as it would tend to deter surgeons from the operation, still it ought by no means to amount to a prohibition. These statistics are on a large scale; and certainly no limited experience, however exact, will entitle us to form a positive conclusion; but as regards civil hospitals, as far as the returns go, the same discrepancy may be observed. The results stated in the report alluded to (I believe, taken from my own tables, in part) exhibit on no less an authority than that of Mr. Erichsen, a total loss of thirty-two cases in Edinburgh, Glasgow, and St. Thomas's, out of the same number of thigh amputations; while his own experience at the London University, and Mr. Curling's at the London Hospital, appears to have been more favourable (and many others might be added); thus, then, if the experience of military practice be compared with military; of civil hospitals in large cities with those of others; a singular amount of discrepancy is observable; and to this I will now add the comparative results of two provincial hospitals very similarly situated, which the report of the Oxford affords. In that institution, of six primary amputations of the thigh, five were fatal: in the Exeter there were eight deaths out of thirteen, as stated in the tables I constructed, and which are contained in two memoirs in the 17th and 18th volumes of the *Transactions of the Provincial Medical and Surgical Association* (which tables may be briefly described as follows: 'I took three hundred consecutive cases of amputation of all the limbs, beginning from the period when I first became surgeon of that hospital. Of these, ninety-four proved to be for injuries; and of these sixty-eight were primary and early intermediate; twenty-six secondary and late intermediate. Of the former, thirteen were of the thigh, and eight died.')

"Pursuing this subject of the singular discrepancy in the results of amputation, it is well worthy of remark, that of the twelve primary leg amputations in the Oxford Infirmary, none died, while of eighteen in our own, seven died. But then an extract from the very valuable work of an able surgeon, now no more, Mr. Alcock, will offer a similar example. He says: 'In the first sixteen amputations performed for gunshot wounds, consisting of primary and secondary, including a shoulder-joint case, the majority of the thigh and leg, I lost but one (and that was an almost hopeless case of secondary amputation of the thigh). In the next eight I lost seven.'

"However worthy of notice these discrepancies are, there can be no doubt that they will ultimately be found to resolve themselves into definite principles governed by certain laws. They are like the perturbations of the planets, which once were equally unexplained. But to return to our more immediate subject.

"*The Mortality after Amputation for Injuries, as compared with those for Disease.*—In Mr. Hussey's report of fifty-five amputations of the thigh for disease, ten were followed by death; in my own, out of one hundred and nineteen, there were ten; here, again, it is probable that, as regards the former, the mortality may, from some accidental circumstance, have been greater; in my own, less than the average; but take which table you will, there is no proportion between the general mortality after amputation for disease, and for injury, and take which you will, while the mortality after amputation for diseases, especially of some large classes of disease, is not alarmingly large, even in the

<sup>1</sup> He lost nine out of forty-seven of all limbs.

thigh, for that injury has justly been stated as the 'most fatal in surgery.' When the influence of concurrent diseases, as of the lungs, etc., and chance misadventures in carrying out the operation, and its subsequent treatment, are duly considered, the actual mortality for disease is not large *per se*, as in the memoirs I have alluded to, I have endeavoured to show; but this being the case, then comes the question, On what does the great amount of mortality after amputation for injuries depend? My answer is, Not on the amputation, but on the injury.

"Mr. Hunter's axiom—that it arises from the condition of health not bearing disease well—I have before combated, and there is little reason to believe it will be insisted upon, but in lieu thereof other hypotheses have been advanced, which, when duly inquired into, will, I believe, be found extremely doubtful, to say the least; in the discussion, however, to which I now refer, the phenomena thus explained occupy a prominent place. The extraordinary mortality in cases of amputation of the thigh, then, has been of late years attributed to the bone itself; to inflammation of its medullary membranes; still more to inflammation originating in the veins. At first sight there may appear grounds for these opinions, which are advocated by men of high ability, but when it is considered that in the parallel example of the arm, also in the leg and forearm, the mortality after amputation for injuries is comparatively small, the value of these hypotheses will considerably decrease; still more, when the comparative results of amputation for injury and disease are well considered with relation to the thigh itself, and with reference to this I will content myself with quoting the following passage from my second memoir: 'Very high authorities attribute this (mortality) in a great degree to a cause which, at first sight, appears to offer a ready solution, namely, that the veins within the bone are mechanically prevented from closing, as in the soft parts, and are, therefore, prone to inflammation. The facts now stated will show that, however this may be, it cannot be the real cause; for precisely the same conditions, as to the bony structure, obtain in amputations for disease, where such consequences rarely ensue, as in those for injury, in which secondary inflammation is so common; and in those for injury I may observe, that they occur in a very small proportion when the amputation is of an upper extremity, the condition remaining the same. That inflammation of veins often takes place after amputation for injury, and that secondary inflammations in other tissues also occur, is a fact, and that these, whenever they take place, are capable of exciting an additional, and often fatal, effect, is quite certain; but, it may be demanded, if veins inflame in the one case, why should they not equally in the other, if the amputation is performed through sound and healthy parts in a healthy person (primary amputation)? why should the veins inflame when the cause is an injury, so much more frequently than in the unhealthy, where it is disease?' (The bone is equally sawed through in one case as in the other, and above the injured portion.) Of this remarkable fact no explanation has ever been offered.

"If then I am justified in supposing that these hypotheses are insufficient to explain the phenomena, I may be warranted in again proposing that which I advanced in the memoirs alluded to. It is this. That the lesions which require amputation (in primary cases) are, for the most part, produced by causes which extensively crush or lacerate the part. That in those which require the amputation of the thigh, a very considerable portion of the body is involved. That the condition of the nerves in any part so crushed or torn, is very similar to that of a portion of the spinal cord as experimented upon by Le Gallois and Wilson Philip half a century since. That the effects on the system in either case constitute what we call shock. That whether the injured part is severed by amputation or not, death often ensues, as is well known, as also that if an operation is superadded at an improper period, either too soon or too late, additional injury is inflicted; but if sufficiently soon, or sufficiently late, much benefit often accrues. That, whether the part is severed or not, a train of symptoms arises from the lesion which required it. That these symptoms are very probably the consequences of changes wrought in the blood by the injury, as stated, through the agency of the nervous system, and is, so to say, more or less disorganized thereby; the effect being not very dis-

similar from that produced by the introduction of morbid poisons. That this state of the blood (not excluding that of the nervous system) is incapable, while it continues, of supporting the processes of healthy inflammation, and hence the tendency to gangrenous inflammation and phlebitis in the stump, and the diffuse inflammations, pyæmia, and pus deposits, in the system. That the powers of nature are capable, in many cases, of redeeming this state of the blood, either when amputation has been performed or not, and if not, when so redeemed amputation may very frequently be performed with success (true secondary).

"Another question arises, *i. e.*, whether this hypothesis is supported or contradicted by any other results of amputation for disease. I have already pointed out the great difference between the general results as regards the relative amount of mortality in amputation for disease or injury, but a very remarkable fact disclosed itself in my investigation of the histories of amputation for disease, as regards these especially. To render the investigation methodical, I had distributed them into classes, according to the disease for which they were performed, a plan which has not heretofore been attempted, but which is so consistent with reason, that I hope it will be. In the memoir alluded to, I divided them into two groups. The 1st, diseased joints, necrosis and caries, sphacelus senilis (chronic gangrene), malignant diseases (tumours not ulcerated), and useless limbs. These comprised one hundred and seventy-two cases of all kinds, with only eight deaths.

"In the second group, old ulcers, whether malignant or not, acute sphacelus, and acute suppurative inflammation (thecal, etc.), in all thirty-two cases, there were nine deaths. The amount of mortality in this group is, as regards the *lower extremities*, fully equal to that of amputation for injury, which, out of fifty-one cases, gave twenty-one deaths; while this, out of twenty-five cases, gave nine. And if we investigate the probable cause of this (setting aside the question of age, which must have its due weight as regards the amputation for ulcers), we shall find that the condition of the blood may be regarded as in a state very similar to that which I have supposed to be induced by injuries, *i. e.*, if not absolutely pyæmic, at all events readily disposed to be so. And consequently, the facts would tend to support the opinion I have advanced as regards amputation for injuries; at all events, not militate against them.

"To the scheme of the *Analysis of Amputations for Disease*, I may also solicit the attention of surgeons; for, if more extended inquiry shall confirm the preceding views, it is evident they will have an important practical bearing on the plans adopted. I may further be permitted to add, that when the small amount of mortality ensuing upon amputation of the limbs for diseases of joints is compared with that which has followed their excision, it may not improbably be found that the advantages gained by the latter operation do not sufficiently compensate for the risk incurred."

26. *Cases of Compound Fracture of the thigh; Primary and Secondary Amputation.*—By AUGUSTIN PRICHARD, Surgeon to the Bristol Royal Infirmary. The subject of compound fracture, and of primary and secondary amputation of the thigh, has been occasionally brought before the profession within the last few months, in the interesting records published by some of the able surgeons who have had opportunities of witnessing these accidents on a large scale in the late war. The want of success of primary amputation of the thigh, among both French and English, has been most discouraging. Writers on military surgery say most justly that the condition of the patient is generally unfavourable, and that the nature of the injury is so different from that which goes by the same name in civil surgery, that no comparison can be fairly made with reference to the results of treatment. It is obvious, without any argument, that the shattering of a thigh bone by a rifle-ball, which completely perforates the limb, must be a very different and more severe degree of injury than that produced by a fall, when the fractured extremity of the bone is thrust through the integuments. This would fully account for any want of success in treating these cases, by trying to preserve the limbs; but we must look for more general causes to account for the excessive fatality accompanying primary

amputation of compound fractured thigh from gun-shot injuries. These are probably to be found in the surrounding circumstances, rather than in the state of the limb or in the condition of the patient himself; for in any case where primary amputation of the thigh is considered essential for the preservation of life, the injury and the shock must necessarily be very great, if not in regular and exact proportion to one another.

I publish the following series of cases, including all that have been under my own care for the last four or five years, to confirm the views of the military surgeons as to the differences in the effects of injury, and as a testimony that there are many cases which recover. Compound fracture of the thigh is not a very frequent accident, compared to many others which we see in hospital practice.

In this list of seven cases, two were treated without operation; three by primary, and two by secondary amputation; and all recovered.

*CASE I. Compound Fractured Thigh; Treatment by Long Splint.*—Thos. Abbott, a rivet carrier, aged 13 years, was admitted under my care on the 11th of September, 1855. He had been struck down by a swing, which passed over him, striking back his legs, and fracturing the right thigh in the upper third. On admission, a wound was found over the position of the femoral vessels, from which projected the lower portion of the thigh bone, broken transversely. A considerable piece of his shirt had been carried into the wound by the upper fragment, which occupied the deepest (or most posterior) part of the cavity. Upon making extension, and at the same time applying pressure to the protruding bone, it suddenly slipped back, and the upper fragment started up like a spring, and almost projected at the wound. He was treated with simple dressing and the long splint, and recovered without any suppuration or serious evil. He was discharged cured on the 10th of November, with his thigh bone united.

His cure thus occupied sixty days; the unusual shortness of which period was due to his youth and good health.

*CASE. II Compound Fractured Thigh; Treatment by Long Splint.*—Thomas Chinn, aged 29 years, a short and stout man, not leading the most temperate life, was struck down and injured by a cart, and was brought to the Infirmary on the 6th of March, 1856. He was found to have an oblique fracture of the middle of the right thigh bone, with a small roundish hole on the outer side, caused by the pointed extremity of one of the fragments.

This patient was treated with the long splint and simple dressing, and was kept under the influence of opium for some time. The wound closed, and appeared to heal in a great measure by the first intention. He took a grain of opium every six hours for about ten days, when it was necessary to give him some gentle aperient, as there had been no action of the bowels. In six weeks after his admission, he was placed in starch and pasteboard bandages; and after some time went out with fair union.

I saw him about three months and a half after the accident; the union of the bone was complete, his thigh was strong, but he was extremely lame, for the leg was about an inch shorter than the other, and the knee very stiff—a common consequence of long confinement in the extended position. He was compelled to help himself with his crutch, and complained, not of the thigh at the fractured part, but of the knee.

The extension of the ligaments of the knee-joint, which is almost inevitably connected with the treatment of fractured thigh (both simple or compound) by the long splint, is undoubtedly a great evil. The long continued extension which is necessary, causes the ligaments to yield a little; and when the splint is removed, a limb, which will ultimately be of the same length as the sound one, appears a little longer; and by moving the leg laterally, whilst the other hand steadies the thigh, we can feel the upper surface of the tibia striking alternately against the condyles of the femur—a thing impossible in the ordinary condition of the joint. At the Bristol Royal Infirmary, our cases of simple fracture of the thigh are always treated in this way—viz., the long splint and the pelvic strap—and invariably do well. The looseness of the knee gradually disappears.

CASE. III. *Compound Fractured Thigh; Primary Amputation.*—George Rogers, aged 11 years, was admitted on the evening of the 9th of September, 1853, with compound fracture of the left thigh. He caught his leg between the spokes of a wheel, as he was sitting up behind a carriage; the thigh bone was separated at the epiphysis; the upper fragment protruded for three or four inches, and the skin of the leg was very much lacerated. I amputated his thigh about the middle, by double flaps, under chloroform. He was extremely depressed during the operation, but subsequently revived. His thigh was very muscular for a child, and several vessels required ligature. I brought the edges together in my usual way, *i. e.*, with German silver pins<sup>1</sup> (twisted suture), and a few strips of adhesive and bandage.

Sept. 10. He was very faint during the night, and a good deal of brandy was given. The sutures were all taken out on the fourth day. There was afterwards considerable suppuration within, but it subsided, and he went out shortly with an excellent stump.

CASE. IV. *Compound Fracture; Primary Amputation.*—Robert Jones, aged 7 years, was admitted in the morning of the 23d of August, 1854, with his knee crushed by the wheel of a cart. The bone was separated at the epiphysis and crushed, and two inches of it protruded through a lacerated opening in the soft parts. There had been free hemorrhage from the wound for some time.

At noon I removed the thigh by double flap, involving a part of the wound in the incision, and performing the operation as rapidly as possible, to prevent further loss of blood. His pulse was barely perceptible. I tied the arteries, and also the femoral vein, which was disposed to bleed, fearing the effect of any more bleeding. The stump was dressed as usual. When he was carried back to bed, he was cold and pulseless, looking white and waxy, as if he had been drained of all his red blood. Four hours after the operation, his pulse was occasionally perceptible, and he had been vomiting, and had thrown up the brandy that had been given. In the evening, the external application of heat, which was made immediately after the operation, had produced some general warmth; and his pulse was steadier.

Aug. 24. Skin hot; pulse 152. He is barely sensible, and does not seem to know that his leg has been cut off, although chloroform was not given at the operation. He was ordered to have eight drops of laudanum.

On the sixth day after the operation, the stump was dressed entirely, and but little union by the first intention had taken place. There was subsequently some tendency to retraction of the flaps; but, by careful bandaging from above downwards, the bone was well covered. He was many weeks rallying from his loss of blood, but he ultimately recovered with a good stump, and became fat and strong.

CASE V. *Compound Fracture; Primary Amputation.*—William Piddiford, aged 16 years, was admitted in the evening of the 11th of September, 1855 (the same day as Case I.), with a compound fracture of the right thigh, from a direct blow. The "cage" in a coalpit fell, and struck him on the front of the thigh, above the knee. The bone was broken, and the limb bent backwards; the popliteal artery was ruptured, and a large laceration made into the upper part of the popliteal space. He lost a large quantity of blood immediately. The finger introduced through the wound discovered comminution of the femur, and about an inch and a half of the popliteal artery hanging loose in the cavity, but not bleeding.

I amputated by circular incision, as close to the injury as possible. Eight vessels were tied, and the flaps brought together by three pins and adhesive plaster. The artery was found closed by a firm plug, and contracted at the end. He went on without any bad symptoms. The last suture was removed

<sup>1</sup> The advantages of these over ordinary sutures in dressing stumps, are the complete apposition which is obtained, the little irritation which they produce, and the great ease with which they are removed. I have frequently allowed them to remain eight days; and am constantly in the habit of removing them without the knowledge of the patient.

on the 20th—i. e., on the tenth day. Very incomplete union by the first intention occurred, and this I attribute to his loss of blood; for the friends say that he bled very largely at the mouth of the pit when he was drawn up; and he was many days rallying at all after the operation. He went out cured on the 19th of October, and soon afterwards became fat and well.

**CASE VI. Compound Fractured Skull; Compound Fractured Thigh; Comminuted Fracture of the Patella; Secondary Amputation.**—William Owen, sailor, aged about 45 years, was admitted in the afternoon of the 11th of April 1853, having just fallen upon the deck from the yardarm of a vessel. There was a large wound across the forehead, bleeding freely, with fracture of the outer table of the skull into the frontal sinus, from which air and blood bubbled out. Below was a lacerated wound of the nose with fractured os nasi. He had fracture of the little finger of the right hand; a large round hole in the middle of the left thigh (anteriorly) from which blood oozed freely; transverse fracture of the femur at this point, the lower part being drawn up about two inches behind the other fragment; and, in addition to all this, there was comminuted fracture of the left patella. The thigh was full of effused blood and coagula. There was great ecchymosis of the lids of both eyes.

Four sutures were inserted in the skin of the forehead, and cold lotion was applied. A wet pad was applied to the wound of the thigh, the long splint, and a bandage over the patella. In the evening, the knee-joint had become full of fluid, and it was necessary to cut the bandages. A ligature was tied upon the frontal artery, which had begun to bleed upon the establishment of reaction. He could not open his eyes.

*April 12.* He is sensible, and complains of the thigh, which is very tense.

*15th.* He goes on well; sweats very much; pulse quiet. He was directed to have a pint of strong beer daily. He went on in the same way, gradually improving, until the 2d of May, when extensive suppuration in the thigh came on, and his health began to suffer.

*May 17.* Much worse; is unable to bear any pressure or extension; great collection of fetid pus and discharge from the thigh. I placed him under chloroform, and made a free incision on the outer side of the limb, and turned out the coagula. Finding the upper part of the femur rough at the extremity, and not at all in contact with the lower part, I turned it out, and sawed off the end, placed the parts in apposition as well as possible, and put the limb up again with the interrupted long splint, leaving a free aperture at the side for the escape of pus.

*30th.* He appeared to be sinking from the discharge, which still collected, although I enlarged the lateral wound. As the case was getting from "very bad" to "still worse," I put him under chloroform again, passed my finger through the original wound in the front of the thigh, and made a large and free counter opening at the back of the limb, and introduced two strips of bandage completely through, to keep the opening clear. The surface of bone whence I had removed a portion a fortnight ago, was covered with granulations, showing considerable reparative power in his constitution, and confirming my idea that I was not running too great a risk of his life in thus trying to save the limb. After this operation he mended for a time, and careful extension was kept up with the hope of union. None, however, took place, and the discharge again became profuse. He drank nearly a bottle of wine a day for two or three months, at the end of which time two necrosed portions of femur came away, without altering his general state. The chance of saving the limb was now lost.

*Oct. 6.* I amputated the thigh, under chloroform. The limb was in the following condition. The upper part of the femur projected through a wound on the thigh, the lower part was at the back and much retracted; there was a considerable collection of matter in the tissues. I made a circular incision above the knee, drew out the lower part, and, making a straight longitudinal cut from the incision into the old wound, I turned out the upper end, and sawed it off. There was considerable hemorrhage from the surface, but it was eventually subdued. The stump was dressed lightly, the patient treated by opiates and stimulants (for many years our method adopted of treating opera-

tion cases, unless there is some good contraindication), and there was considerable union by the first intention. After a time, however, the bone appeared through the longitudinal cut above described, and he suffered greatly from profuse sweating and copious suppuration. It was soon obvious that the end of the thigh bone had not withstood the action of the saw, and was dead. In about six weeks the portion exfoliated; ultimately the stump healed entirely, and the patient went out, after so many months of danger and suffering, walking firmly on his wooden leg.

**CASE VII. Compound Fractured Thigh; Secondary Amputation.**—William Farmer, aged 18 (one of three at a birth, one other of whom survives), was admitted in February 1855, for a compound fracture of the left thigh, a door having fallen upon him. The upper fragment pierced the integuments at the outer side of the thigh. He was treated with the long splint and dressing, but there was no apposition of parts, and pus collected and discharged in large quantities. The upper part of the bone projected forwards, and there was a sharp prominence behind, pressing against the bed, as if the lower portion had been dragged upwards and backwards, and had almost perforated the skin. His health began to fail rapidly.

I amputated his thigh on Sunday the 22d April by circular incision, under chloroform. A large quantity of pus followed the second cut, and after the bone was exposed, I used a scalpel, and the lower part of the limb was drawn out, leaving a long cavity above. I tied the femoral and other vessels, but there was free hemorrhage from the large granulating cavity which had been exposed, and to stop the bleeding, I was compelled to lay open the cavity by an incision below. Turpentine had the effect of stanching the blood. The femoral vein and an arterial twig from the profunda lying behind it were tied *en masse*, as the lad was very faint. In the evening his pulse was just perceptible and he had been very sick, and this continued until the middle of the following day, when I ordered him a pill composed of a drop of creasote and a grain of opium, from which time he was not sick. He takes six ounces of port wine daily. By the 1st of May the upper and anterior part of the stump had healed, and the lower part discharged healthy pus. He soon began to gain flesh and a healthy colour, and he left the Infirmary in the middle of May, with a small wound still remaining at the lower part of the stump where I had made the longitudinal cut; and he is now (August, 1856) quite well.

The termination of all these cases was most satisfactory; and this is undoubtedly due to their youth, good health, and the great care they received in the airy wards of our Infirmary, and also to the liberal support they had in the way of nourishment and stimulus. I can hardly venture to hope that my next seven cases will be equally successful.—*Assoc. Med. Journ.*, Sept. 6, 1856.

**27. Excisions of Joints.**—Surgeon THORNTON, of the 9th Regiment, read at the meeting of the Crimean Medical and Surgical Society, March 20, a paper on excisions, a subject, he said, of deep importance to us all, not only from the extent to which the principles of conservative surgery have been carried during the war, and the benefits that this class of operation has conferred on mankind, but also from the success that has generally attended our efforts in these cases, which must be a source of sincere gratification to ourselves, both individually and as a body, and tend to reflect credit on British military surgery. He would now read a few cases, bearing on the subject of excisions, that had occurred in his own practice, and some that had been kindly supplied to him by others. He did so, in the hope that the other members would also tell what success had attended their efforts, and gain, if possible, some more adherents to the cause of conservative surgery. He trusted they would excuse his appending any lengthened remarks to the cases, as it was not so much to give his own as to hear the opinions of others, that he came before them, and to promote the objects of the Society, by introducing a subject of discussion that is so interesting to us all; as we may any day, whether in peace or in war, be called on to prove our practice, and we ought to be able to do so with benefit to those intrusted to our care. He expected from the discussion that would take place, that we should carry away with us the sound, practical experience of many

whom he saw present, and who had had more opportunities than himself of developing this branch of the profession, and prove to all that this Society (in the success of which we feel deeply interested) was a real benefit, not only to ourselves, but also to those committed to our charge, affording, as it did, an opportunity for promulgating our views, and thus tending, by the accumulation of facts, to the production of an improved practice. Those who had heard the discussions on the various subjects that have already been brought before this Society, must have been struck by the sound, practical views that have been expressed, and the observations made on the influence that climate has over disease, founded on the experience of our members during their residence in various parts of the world; for there are few portions of the globe where we shall not find that some one amongst us has been.

The first case he would bring before their notice, was one of excision of the shoulder-joint of private T—R—, 9th Regiment, aged 25 years, who was wounded on the 4th of July, 1855, whilst in the trenches before Sebastopol (left attack), by a shell which wounded five men; a large splinter of the shell struck him on the left shoulder, fracturing in its course the acromion, coracoid, and a large portion of the spinous process of the scapula; it also fractured the neck and glenoid articulation of the left scapula, breaking them into small pieces; the humerus was fractured in a longitudinal direction for about three inches from its head, through the head, the fracture being also comminuted—there was some slight venous hemorrhage. On the following morning, having determined on excising the fractured portions of bone, chloroform was administered. He then, Dr. Taylor kindly assisting him, passed the catlin through the wound, and, with one sweep of the knife, laid the wound open behind, from the shoulder to the axilla, then dissected out the fractured end of the humerus and sawed off the jagged end of the lower portion. The upper fragments were then removed, and the head of the humerus disarticulated, and all loose portions of the scapula removed: the edges of this extensive wound were brought together, and retained by sutures; there was only a slight oozing of blood from the divided muscles; no ligatures were required. On the 8th of July, the wound appeared to be healing very favourably, and his general health continued good. On the 9th, an erysipelatous blush appeared round the shoulder, but the wound was discharged healthily. His strength was supported by wine, porter, etc., and a simple dressing of lint, wetted with a weak solution of chloride of sodium, applied in order to remove smell, and keep off the flies, which were a perfect plague in our hospitals at this season. On the 10th, the erysipelatous blush extended round the wound. The sutures were removed, and a linseed meal and charcoal poultice applied; however, gangrene set in, he sank rapidly, and died the following morning. It is of importance to remark, with reference to this case, that, on the night of the 8th of July, a regular sirocco set in, which continued for three days; with its advent, all the wounds then in hospital took on an unhealthy character, and although no other casualty took place, it tended materially to delay the recovery of the other patients. The question may, perhaps, arise: Was this a case in which conservative surgery was advisable, and whether it might not have been better to have removed the limb from the shoulder-joint? He must state that he was still of opinion that the best course was pursued under the circumstances, for there was this very important fact in favour of its success, that the vessels and nerves had escaped intact, and that there was a fair reason to hope that the reparative efforts of nature would be successful. The unsuccessful termination of the case he considered as owing to the peculiar climatic cause already referred to, producing unhealthy action in a very extensive wound.

The next case was one of excision of the internal condyle of the humerus:—

Private T. B., 9th Regiment, aged 30 years, was wounded, on the 8th of September, 1855, by a musket-ball in the left elbow, which fractured the internal condyle of the humerus, and also wounded the joint; he at the same time received a severe bruise on the left hip from a splinter of a shell. The bullet and some small pieces of bone had been extracted in the trenches, and on examination some time after, at the hospital, Mr. Thornton decided on saving the limb, supporting it on a splint, dressing the wound with lint, and kept moist with

cold water. On the 10th, severe inflammation of the joint set in, with much swelling, and considerable constitutional disturbance. On the 11th, the fourth day, the febrile symptoms were less, but swelling and pain had much increased, while the skin round the wound had a mottled appearance, as if threatening gangrene. Chloroform having been administered, Mr. Thornton made a free incision in line with the humerus down to the bone, at the same time laying open the joint, and exposing the fracture. He then removed all the broken portions of the internal condyle; the other portions of the joint were uninjured; there was much hemorrhage during the operation from the distended state of the vessels, but there were no ligatures required, and the ulnar nerve was untouched. The edges of the wound were then brought together, and a few sutures applied; the arm supported by an angular splint placed on the outside, and plain cold water dressing applied to the wound. The swelling, which had been so considerable previous to the operation, had all subsided ere it was completed. From this time, the limb and his general health steadily improved, and he was invalided to England, in November last, in consequence of the reduced motion of his elbow. However, the amount of motion was steadily increasing, and when he left he could extend his arm to within one-third of its natural motion. This was to Mr. Thornton a very satisfactory case, from his being enabled to save the limb, which at one time appeared to be very doubtful. He believed that the external condyle had been removed several times, but he had not heard of the internal condyle having been excised on any previous occasion, and it is the only case recorded to have taken place in the Crimea. Considering how important the internal condyle is to the integrity of the elbow-joint, Mr. Thornton was agreeably surprised to find that the motion of that joint had not been more affected by the operation. He should have been perfectly satisfied with the success of the operation, had the patient recovered with stiff joint; and he must acknowledge that it was very gratifying to watch the gradual improvement in the movements of the joint.

The third case is one of excision of the elbow-joint, performed on the 19th of June, in the General Hospital, by Mr. Wyatt, Coldstream Guards, who had kindly given me the notes of the case:—

Private J. O'B., 44th Regiment, received a comminuted wound of the right elbow in the attack on the Redan, on the 18th of June, aged 26 years, of a healthy constitution. A Minié ball had entered on the inside of the joint, between the olecranon and internal condyle, comminuting both, and dividing the ulnar nerve; it then passed through the arm about two inches above the joint; the external condyle was fractured and detached from the humerus, and the heads of the radius and ulna were also comminuted. The artery was uninjured; the internal wound was much lacerated; and the bullet, which was much compressed, lodged in the cloth of his coat on the outside of his arm. Altogether it appeared a good case for excision of the elbow-joint, which operation, with the concurrence of Drs. Taylor and Mouat, was performed by enlarging the internal wound in a semilunar direction upwards and outwards. The lower end of the humerus was then thrust backwards through the wound, and two inches of its extremity sawn off. The soft parts were then detached from the upper end of the ulna, and that bone divided just below the coronoid process. The articulating cap of the radius was also sawn off just below the tubercle, so as to preserve the attachments of the tendons of the biceps muscle, and cold water dressing applied, the arm being placed in a semiflexed position. After some days, pyæmia set in, and he died on the 25th of June.

The last case he would read, was that of excision of the hip-joint, performed by Dr. O'Leary, 68th Regiment. This, as being the only successful case, he would give the notes in full, as supplied by Dr. O'Leary.

Case of excision of the hip-joint, 68th Regiment:—

Private Thomas M'Kenna, 68th Light Infantry, aged 25, was admitted into hospital on the 19th of August, 1855, from the trenches, where he was struck by a fragment of a shell over the great trochanter of the left femur. The wound, which admitted of the introduction of the fore-finger, extended down to the bone, and at the bottom of it some scales of osseous structure, lying loose, could be felt. From the examination it was evident that the neck of the bone was frac-

tured, and, on the following day, it was decided to excise the joint. The man was placed under the influence of chloroform, and excision carried down along the shaft of the bone, which was separated from its attachments, and sawn off about an inch below the lesser trochanter. The head of the bone was, without difficulty, removed from the acetabulum. The man lost a considerable quantity of blood, although no vessel required a ligature. When the operation was completed, the edges of the wound were brought together by the interrupted suture, and a bandage applied. The leg was swung in a sling of strong canvas from a beam over his cot, the heel being considerably elevated, and the injured limb slightly abducted. This method of treatment was adopted with a view to encourage approximation of the upper end of the shaft of the bone to the acetabulum, and by pressure on the under surface and sides of the limb, to prevent the accumulation of matter among the tissues. When the injured parts were removed, it was found that the fracture extended obliquely downwards, between the trochanters and upwards, to within half an inch of the cartilage covering the head of the bone. Although the man's pulse for several weeks did not fall below 100, the functions were healthily performed, he slept well, ate with appetite, and was cheerful throughout. His diet was generous and varied, and a liberal supply of wine was allowed him. At the end of the twelfth week, he was able to leave his bed, and move about on crutches; and, on January 16, 1856, he was transferred to a ship about to proceed to England with invalids. When he left the camp the wound was firmly united, two small sinuses only existing, which admitted of the introduction of the director, and which discharged a very small quantity of thin, purulent matter. He was gradually regaining power over the limb, and was able, to a limited extent, to flex the leg upon the thigh, and the thigh upon the pelvis. Shortening to about five inches, and very slight inversion, were the chief deformities consequent upon the operation. In an injury of this nature, where so great an extent of bone required removal, and particularly of that portion which gave insertion to so many of those muscles which are chiefly employed in the abduction of the limb and in its rotation, it is scarcely to be expected that a free use of the leg can result. However, it may be hoped, that, with the use of a boot having a thick sole, and a high heel of some light substance, this man will, in the course of time, be able to move about with the support of a single stick. The apparatus employed in swinging the limb was made of strong sail-cloth, and extended from the nates to the malleoli. Its long edges were turned down into deep lems, through each of which was passed a piece of wood rounded, and of about half an inch in diameter, the extremities projecting two inches. Two pieces of pack-line, each a yard long, were attached by a loop to the ends of the rods; and to the centre of the cords was knotted another line, which passed over a beam, and was secured to the bedstead on which the man lay, to prevent lateral motion; and to preserve abduction, at a fixed angle, the lower ends of the pieces of wood were attached to the cots on either side. The use of an air-bed prevented the formation of bed-sores.

Doctor O'Leary's case speaks for itself. It may be asked why, in speaking of the success of excisions, that he brought forward two cases that terminated fatally, simply that we hear quickly enough of the successful cases, and he believed that we learn more from the unsuccessful ones. The real question at issue is, whether are excisions or amputations most fatal to human life? The tables that he would now read to the Society were decidedly in favour of the former. He found, by the return of wounds and operations during this year, that Sir John Hall was so kind as to give this Society, that, out of a total of 8,900 wounds, there were 1,154 operations, of which 54 were excisions, which may be thus classed:—

	Cases.	Fatal.	Per cent.
Excisions of the upper extremity were	36	2	5.55
“ “ lower “ “	14	7	50.00
Miscellaneous	4	0	
	<hr/> 54	<hr/> 9	<hr/> 16.66

or 83.34 per cent. were successful.

Total operations 1,154. Deaths 225, or 19.49 per cent.

Operations less excisions, 1,100. Deaths 216, or 19.63 per cent., giving 3 per cent. in favour of excisions.

Or, to enter more minutely into the various operations, we will first take those of the shoulder-joint:—

	Per cent.	Per cent.
Amputations were 60, fatal 19, or 31.66, or 68.34 successful.		
Excisions       “ 12, “ 2, “ 16.66, “ 83.34       “		

giving a difference in favour of excision 15.0 per cent.

The next is that of amputations of the arm, with excisions of the elbow-joint. This class, he frankly owned, was scarcely a fair test:—

	Per cent.	Per cent.
Amputations were 153, Deaths 29, or 18.95, successful 81.05		
Excisions       “ 17, “ 2, “ 11.76, “ 88.24		

giving a difference in favour of excisions of 7.19 per cent. Perhaps the most important class is that of operations on the hip-joint; for, while the ten cases of amputations all proved fatal, there were six cases of excisions of the head of the femur, of which one recovered, being a percentage of 16.66 in favour of the excisions. It is needless, on the present occasion, to carry this analysis any further; but, taking the three classes together, we find that of 223 important amputations, 58 or 26 per cent. were fatal; and of 35 excisions, 8, or 22.85 per cent., were fatal. On the whole, that the percentage is still in favour of the excisions. It, perhaps, might be as well to mention what might have been the excisions performed out here.

Of the upper extremity, there were of the

	Cases.	Per cent.
Shoulder-joint . . . . .	12 . 2	or 16.66 proved fatal.
Elbow . . . . .	17 . 2	“ 11.77       “
Head of Radius . . . . .	1 . 0	“ —       “
Ends of Radius and Ulna . . . . .	1 . 0	“ —       “
Part of Ulna . . . . .	1 . 0	“ —       “
Part of Humerus . . . . .	1 . 0	“ —       “
Part of Carpus and Metacarpus . . . . .	2 . 1	“ —       “
Internal Condyle of Humerus . . . . .	1 . 0	“ —       “
	36	

Of the lower extremity, there were of the

Head of the Femur . . . . .	6	5 fatal.
Part of the Femur . . . . .	2	2 “
Knee-joint . . . . .	1	1 “
Os Calcis . . . . .	4	0 “
Lower End of Fibula . . . . .	1	— “
	14	8

Miscellaneous cases were 4, principally of the face, including one excision of the lower jaw—all successful. Mr. Thornton then gave a rapid sketch of the history of excisions, and that almost all had been performed on account of disease of the bones; and he might safely say, that it had fallen to our lot to prove, by the experience of this war, the efficiency of excisions over amputations in recent gunshot wounds of the joints; and we must allow that the results are, so far, satisfactory. Another question is, how much of the joint may we remove, or leave with safety? We certainly may deal more freely with the upper than the lower extremity. In one of the cases he had read, he removed only a portion of the elbow, whilst he had freely opened the joint, and this without the slightest after-symptoms to cause him to hesitate in doing so again, should an opportunity offer. The general results of the operations on the upper extremity are certainly satisfactory, whilst those of the lower extremity, as we might expect, have not been so happy, but are still so much so over amputations as to make us regret that they have not been oftener tried. We must all rejoice that

the last act in the grand drama that we have been engaged in, has been the establishment of this Society; and that, while the nations are laying aside the sword in peace—although we have a warfare to carry on against quackery, ignorance, and routine, perhaps in none more so than the subject before your notice. The members of this Society owe it to themselves, he would say, to proceed in the good work which has commenced so well. Let us, therefore, keep this Society not only alive, but active, and draw forth that knowledge which our discussions have already given us such good reasons for knowing that our fellow-labourers in the field of humanity possess. In conclusion he would say, remove as little of the human frame as possible, and let us enlist under the banner of conservative surgery.

Mr. McLeod believed that only one successful case of excision of the hip-joint occurred.

Mr. Blenkins said that we are all alive to the importance of this operation; and it was a most interesting subject that, whilst there was some difference of opinion as to the operation, the results were generally satisfactory. He corroborated Mr. Thornton about the effects of climate, and that there was a period when the wounds did badly; the sirocco had affected his patients, one of whom was a hip-joint case. His opinion was such as to encourage repetition of this operation. Excisions must be more frequently repeated, as how many shoulder-joints have been excised instead of amputated, and thus many a limb saved. That the sirocco should have occurred at a time when there were so many wounded in the hospitals, was unfortunate, and his own patients were seriously affected by it. He considered the weather had a great influence on the success of operations. He had excised three and a half inches of the humerus; the wound healed rapidly, and considerable consolidation had taken place. The man will have a good and useful limb. His case of hip-joint was a severe compound comminuted fracture, by shell, of both trochanters, and the neck and head and upper third of the shaft of the femur. The wound did well for three weeks, and granulated healthily. He then began to complain of the knee of the same limb, which had been injured many years previously; depositions of matter took place in the joint, and the man died. He agrees in almost all that Mr. Thornton has stated, and the medical officers of this army have done honour to the profession by the improvements they have made. He considers it our duty to see how much we could do to save a limb.

Dr. M'Andrew added his experience to Mr. Thornton's in the success of excisions; and stated the happy terminations of all the excisions in the Castle Hospital, Balaklava. One check to this operation, heretofore, was the want of chloroform, they being both tedious and painful. Now, at all events, we may have ankylosis of the joints, and save the limb. He then read notes of three cases of excisions that he had performed, all of the head of the humerus; in one with more than two inches of the humerus. They all succeeded admirably, and the patients were sent home with still useful limbs.

Dr. Bems had performed two cases of excisions of the head of the humerus, and one of the elbow. They were secondary operations, and, as such, were quite successful. It was a useful question to consider whether they ought to be primary or secondary operations.

Dr. Salt said they were greatly indebted to Mr. Thornton for eliciting so much information. He was not here during what might be called the operating season, but he rose to refer to an officer, Mr. Timbrell, Paymaster of the 6th Regiment, who had received a compound fracture of both femurs from a gunshot wound in India. As he would not consent to amputation, he was left to nature. He recovered, and his legs are now five inches shorter than before. We find that wonderful cures do sometimes take place. In this case the bones exfoliated, and no operation took place. We ought to take a lesson from it in preserving a limb.

Dr. Taylor had attended the case referred to by Dr. Salt for a short time. He had found him with both thighs broken, and the bone exfoliating; he can now go out shooting. About the cases of excision of the hip-joint there were only six cases, as follows: 1. Dr. Macleod; 2. Mr. Blenkins; 3. Dr. Crear; 4. Dr. Hyde; 5. Dr. Coombe; and 6. Dr. O'Leary's, which alone proved successful. —*Med. Times and Gaz.*, Sept. 13 and 20, 1856.

28. *Extensive Caries of the Left Tibia and of the Upper Third of the Fibula; Dislocation of both Bones Backwards; Excision of Knee-joint; Recovery.*—Mr. G. M. JONES, of Jersey, records (*Med. Times and Gaz.*, June 21) the following remarkable case:—

“Elizabeth Noel, aged 9, was admitted into the Jersey Hospital, August 16th, 1855; but little of her previous history can be collected, as an uncle (the only relation she has) left this island the following day. It would, however, appear that for nearly two years she had been unable to walk without crutches; that poultices of various kinds, but mostly composed of herbs, were applied to her knee and leg at some small village on the coast of Brittany, where she had resided for some years, and that, in consequence of her helplessness and increasing bad health, she was sent to this, her native place, for parochial relief, but more especially to have the affected limb removed. The child’s appearance indicated a strumous diathesis; there was considerable emaciation; her appetite was very indifferent; pulse 106; nights sleepless; and the glands of the neck were enlarged. The affected leg and knee presented an extraordinary appearance. The tibia was dislocated backwards, its head being thrust completely into the ham; the popliteal vessels were thus rendered easily perceptible; the patella, which rested in the interspace between the condyles of the femur and head of the tibia, was so atrophied as to be scarcely distinguishable; the head of the tibia was much expanded, also the whole shaft of the bone generally, and the integuments were in a state of *gonflement*; an open suppurating surface existed along its entire length, the bone being exposed in many parts, and distinguishable by the probe everywhere; several fistulous apertures existed laterally and posteriorly, three also along the fibula on its outer aspect; the probe detected bone in all of them. There existed an immense amount of lateral motion in the dislocated joint; the muscles of the thigh were much atrophied; the motions of the ankle-joint were natural. Four days after the child’s admission, the following operation was performed while the patient was under the influence of chloroform.

“An incision beginning just below the patella was carried downwards along the almost entire length of the tibia. It was made in rather a zigzag manner, in order to include as many of the fistulous openings as possible; the integuments were then dissected on either side of the bones, so as to expose the diseased parts thoroughly. In many places the tibia was found divested of its periosteum, in others it was thickened and rough; while at its upper and lower thirds it was so softened as to necessitate scooping out to a considerable depth before healthy cancellous structure was met with; the gouge and chisel had, therefore, to be freely employed throughout.<sup>1</sup> After removing as much diseased bone as could be seen, the next step was excision of the knee-joint. This was performed, first by making a horseshoe flap, and then proceeding in the manner generally followed, though the extremely disorganized state of the joint rendered the removal of those parts which compose it much more difficult than is ordinarily the case.<sup>2</sup> A large portion of the joint-ends had to be removed; likewise the head of the fibula, and a large sequestrum from the upper third of this bone. The patella, after gouging its under part, was left. No vessel required ligature, though the hemorrhage was at times rather considerable.

<sup>1</sup> For some years I have not operated on joints or bones without having near me several of the tools employed by wood-carvers, and can highly recommend their utility in some cases. Those who have watched carvers at their work must have observed how admirably adapted are some of their tools for taking away some portions without injuring those they are anxious to preserve; so their occasional use in surgical operations prevents the unnecessary dividing of soft parts, and are often of far greater utility than those made for surgical purposes.

<sup>2</sup> This difficulty would have been greatly increased had I not been in possession of the valuable saw given me by the inventor, my esteemed friend, Mr. Butcher, of Dublin, to whose unwearied exertions in the cause of conservative surgery—which cause his great talents so eminently qualify him to advance, I am happy to have this opportunity of bearing my humble testimony.

*"State of the Joint.*—On opening the joint, extensive pulpy degeneration of the synovial membrane was met with; the cartilages covering the ends of the bones presented unmistakable traces of former disease; the semilunar cartilages were partially absorbed, the remaining portions disorganized; the anterior crucial ligament gone, the posterior one much absorbed, and consequently thinner than usual; the tissues generally sound. The joint was tolerably healthy.

"After the operation the leg was placed in a suitable box, and kept steady by means of pads, etc. Water-dressing applied; neither sutures nor adhesive straps were employed.

"It would be a work of supererogation, and tend to no practical purpose, to give anything like a daily account of the progress of this case from the time of the operation to the period of cure; suffice it to say, that everything progressed most favourably, and never for a moment did a single symptom occur to cause the slightest anxiety. At the expiration of ten days there was an evident melioration in the little patient's health; five weeks after the operation she was able to raise the whole limb; and three weeks after this, went about the wards on crutches; scarcely three months elapsed when she moved about without any appliances to the knee. The affection of the tibia and fibula did not keep pace with that of the joint; the healing process was much more gradual, owing to occasional sequestra coming away, which naturally kept up some irritation and discharge. For some time past the child has been in perfect health, strong and stout, and can walk quickly about with her little companions. Water-dressings, with the exception of the occasional use of the dilute nitric acid lotion, were the only local applications employed throughout. The most nutritious food, and an abundant quantity of wine and malt liquor was taken; also quinine, syrup of iodide of iron, and cod-liver oil. The child, as I have already stated, walks well. Cicatrices have replaced running sores; and the limb has almost resumed its natural appearance."

29. *Incisions into Joints.*—Mr. GAY, in a paper read before the Medical Society of London (Oct. 18, 1856,) remarked, that three years ago he brought before the Profession, through the medium of this Society, a method of treating certain forms of articular disease by free incisions into the affected cavities; but that since that period his experience of this treatment had led him somewhat to modify his views, and had enabled him with more distinctness to define the particular forms and stages of disease for which it is more especially adapted. His object in making incisions was not merely to evacuate matter, as in the case of an ordinary abscess, and as this proceeding has been adopted and recommended by others; but as well, and even chiefly, for the purposes of allowing the more ready escape of cartilaginous or bony *débris*—often a cause of destructive irritation to a joint—and of setting up reparative action by making a closed or partially closed and diseased sac a part of a large and externally communicated wound. The results of his experience, as that of many of his professional brethren who had adopted his views, had been still more to convince him that free incisions were of the greatest value in those forms of disease to which they were appropriate, inasmuch as they bring the diseased processes to an equally speedy determination as after resection of the joint, and have the greater merit of leaving the flesh less mutilated, and the joint often almost as useful as before. Moreover, the incisions are often comparatively harmless, and, in case of failure, do not lessen the chance of restoring the limb that resection, or other measures of a graver nature, might afford. Mr. Gay then narrated a series of cases. The first, that of a lady, aged 43, who had suffered for three years from all the symptoms of disease of the cartilage and bony structures of the knee-joint, and had come to have the limb amputated. On making an incision into the joint, which Mr. Gay did, with the assistance of Mr. Stephens, over the seat of the principal pain, a small quantity of sero-purulent fluid trickled out with the blood. On examining the interior of the joint carefully, the cartilage was found to be entire, but slightly uneven, leading to the conclusion that the affection commenced in the synovial capsule, and had not seriously implicated other structures. The intense pain from which this

lady suffered, especially at night, prior to the operation, was completely relieved by it; and, with the exception of a rigor on the day following, succeeded by slight fever, which soon yielded to treatment, not a bad symptom followed. The capsule soon healed, and in a month the patient began to walk about. She has since enjoyed the perfect use of her limb. The second was a case of hip-joint disease of three years' standing. A sinus, having two external openings, led into the joint. The limb was bent upon the trunk, and the joint still flexible, but with great pain. The discharge had almost ceased, and the diseased action appeared to be almost stationary, and had been so for several months. The joint was fairly opened by enlarging the sinus; the head of the bone had been partially removed, and was bare. The joint recovered completely after fourteen weeks, with considerable mobility, quite enough to make the limb useful. The third case, of strumous disease of the articular cartilages of the knee-joint, of long-standing, in a boy nine years old; the pain was severe, and the discharge profuse. The incision did not answer in this case, the disease making progress subsequently, as though pursuing its natural course, with the addition of a severe wound, which refused to heal. The fourth case, of "strumous" disease of the knee-joint of three years' standing, in a girl twelve years of age. The joint was greatly distended, and had been so for more than six months. It was opened, a considerable quantity of sero-purulent fluid exuded, and, in defiance of every attempt to keep it open, the wound healed in three weeks, leaving the joint in the same condition as before. It was opened again after six weeks, and from this time the course of the disease was onwards, and removal of cartilages and caries of the ends of the bones, attended with profuse discharge, and failure of health and strength. The treatment in this was of no avail, and Mr. Gay had at last to amputate the limb. The articular ends of both bones were carious, and the spongy texture of the bones intensely inflamed for some distance along their respective shafts. No traces of tubercle, but small deposits of pus in those parts of the bone where the inflammation was most severe. The fifth case, a woman, aged 62, for disease of the joint belonging to the phalanx of the forefinger. It had existed six months, and remained stationary. The joint was quite loose, and grated when moved, also painful. A free incision on each side, and keeping the wounds plugged, led to speedy ankylosis. The sixth and seventh cases were of hip-joint disease in children, of 7 and 8 years of age respectively. The disease in both cases was in its early stages, and in one only had a sinus been formed. Mr. Gay opened the joints freely, but with somewhat varied results. In both fresh abscesses formed, and burst on the front of the thigh. In one, severe pain in the knee-joint followed, which could only be palliated by blisters, mustard poultices, and opium; in the other, symptoms of rapid pulmonary phthisis. These, however, subsequently yielded, and in both cases, after some weeks, the joint disease relapsed into its ordinary forms, the discharge in each being profuse, and the health bad. The incisions in these cases were useless. The last case was of a lad, aged 12, who had symptoms of subacute inflammation of the knee-joint. After three weeks of severe pain, an opening was made into the joint, and some matter passed away. This did not give much relief. The wound ulcerated, and soon after an opening formed spontaneously, nearly two inches from the first, and led into the joint. Very little matter exuded, and the joint continued extremely painful. Some white (apparently) sloughy matter could be seen through these openings. Chloroform was given, and the joint laid open by an incision, which passed through the two sinuses, and a large "pus-clot" was removed, which appeared to have filled the joint to painful distension. Suppuration followed, and the joint rapidly recovered, the lad being able, in six weeks, to move about by means of a stick, and the joint being entire. There were no indications of bone-disease in this case. After making comparisons between these several cases, the author drew the following practical conclusions: That joints might be opened with advantage. 1st. In cases of chronic inflammation of the synovial capsule of a joint, with effusion into its cavity, and pain; especially if these symptoms shall have been of long standing, resisted ordinary remedies, and are associated with marks of declining health, as in the first case. 2d. In cases of acute or subacute synovitis, where the symp-

toms are unusually severe, and the external coverings of the joint indicate a tendency to ulceration; or where, after a reasonable period, the symptoms do not remit, but indicate the existence within the joint of matter, which, from its becoming a source of irritation, threatens to produce more serious mischief, as in the eighth case. 3d. In cases where the joint is occupied by a bony or cartilaginous *débris*, which, from the small size of existing sinuses, cannot find exit; and 4th. In cases of carious disease of the bones, in which, from diminution of pain and secretion, as well as from other confirmatory symptoms, the disease in which the local affection has originated, shall appear to have exhausted itself, as in the second and fifth cases. He (Mr. Gay) condemned the practice (except for the purpose of relieving severe pain) in all cases in which a chance remains that the joint will recover without, and especially in what are termed "strumous" affections of the joints, so long as the continuance of profuse discharge indicates that the constitutional disorder, in which it is presumed to have originated, has not burnt out; and in the event of this becoming exhausted, only when the persistence of sinuses but slightly discharging beyond a reasonable time might lead the surgeon to suspect the existence within the joint of some dead and irritant matter, or the want of some general stimulus to final and reparative action, which, connecting a diseased sac with an external wound, would supply.

Mr. Stephens confirmed, from personal observations, Mr. Gay's report as to the successful termination of some of his cases. He also mentioned one or two similar cases that had come under his own care. One was that of a man who applied to him to have his foot removed on account of acute pain over and around the ankle-joint. The joint was opened, and several pieces of dead bone were removed, and the man was now following his employment as a navvy, having a perfect use of his foot with comparatively little ankylosis. Another case was that of diseased finger-joint, which was injured by a wound from a gimblet, and which, by similar treatment perfectly recovered. His colleague, Mr. Chance, had also operated for diseased knee-joint upon a young girl, of a strumous diathesis, and altogether in a most unfavourable condition. She remained 12 months under treatment, severe symptoms supervened, and she would probably have sunk but for the most constant and careful nursing; she, however, recovered, and by instrumental aid, could now walk about with the fair use of a limb which once threatened to destroy her.

Mr. Rogers Harrison said he had known many diseased joints, doomed for amputation, recover without any surgical treatment whatever.

Mr. Headland thought it a most serious thing to deal with the larger joints in the way recommended; and he should be glad if the author would furnish some guide for a strict selection of cases in which the operation might be performed with safety. When the constitution was involved by active inflammation and nervous disturbance, the irritation was likely to be considerably aggravated by opening the larger joints; the origin of disease was frequently in some other part of the body, and the patient should be treated for the origin rather than for the local manifestation.

Mr. Price adverted to the tendency of tuberculous disease of the articulations to spontaneous recovery, and expressed an opinion that in a few years' time, the amputation of a lower extremity would be a rare occurrence. He had lately saved four limbs which seemed to require amputation, by the operation of resection.

Mr. Henry Smith said he resolved to try the plan recommended by Mr. Gay when that gentleman brought the subject before the profession a few years ago; and he had since adopted it with considerable success, never having seen any evil effects from the treatment. Small openings into suppurating joints, as formerly recommended by some surgeons, should be discountenanced. Two years ago he opened a diseased elbow-joint, which was completely disorganized; and, though the case appeared a most unfavourable one, an admirable cure was effected.

Mr. Hancock said, the system propounded appeared to be only successful in those instances in which, in consequence of the long duration of the disease, the actual structure of the joints had become so changed as to diminish the

danger of opening into their cavity. Where the disease was recent and progressing, so far from the opening giving relief, it appeared to be attended with an aggravation of the symptoms. Such had been the result of his own experience. He had been willing to give the system a trial, but he thought he had done great mischief by following it. The cases in which Mr. Gay had made incisions into the sinuses connected with the hip-joint would get well by counter-irritation and constitutional treatment. The practice of incising small joints was followed by Mr. Lynn twenty-five years ago; such incisions might be usefully made in fingers, whose entire removal was rarely necessary.

Mr. William Adams said that in several of the cases mentioned by the author complete destruction of the joint had not taken place. He thought Mr. Gay had understated the success with which his practice had been attended.—*Med. Times and Gaz.*, Oct. 25, 1856.

30. *Leg of a Child torn off at the Knee.*—Mr. POLLOCK exhibited to the Pathological Society, Nov. 4th, 1856, the leg of a child torn off at the knee from its becoming entangled in the wheel of street-cab. The child was brought into St. George's Hospital in the afternoon, and was seen by Mr. Caesar Hawkins; he was then in a great state of collapse. On examination, it was found that the left leg had been entirely severed from the thigh at the knee-joint. The condyles and articular surface of the former were entirely exposed, and the soft parts were cut round, almost as if amputation by the circular incision had been performed without the bone having been sawn off. There was a simple fracture of the femur on the same side, about its middle, and a good deal of contusion. There was also a degree of tenderness of the abdomen, which led to the suspicion that some visceral injury had been sustained. It was impossible to say what quantity, or if much blood had been lost; but there was no tendency to hemorrhage from the wound, nor from the divided popliteal artery, without any tourniquet or pressure being applied to the femoral. The child having rallied somewhat, Mr. Pollock removed the portion of the thigh below the fracture, and brought the edges of the wound together with sutures. The tenderness of the abdomen had somewhat increased during the evening, and as the urine drawn off contained much blood, it was evident that some rupture of the kidney or bladder might be looked for.

The leg was picked up by a policeman, and brought to the hospital after the child. The patella was found attached to the leg, but the cartilages of neither patella nor tibia were injured. The curious point in connection with this accident was, that the sciatic nerve was torn out with the leg, and was found attached to it some two feet in length. The boy died two days after the accident. Much extravasation was found along the course of the sciatic, and in branches of the sacral plexus on the same side. Some of these branches were shreddy, and broken off close to the ant-sacral foramina. The sacro-iliac joints were separated, and the pelvis fractured on the right, through the pubis, into the obturator foramen. A sharp piece propelled inwards, and corresponding to this, was a rent in the bladder. Urine had become extravasated in the surrounding cellular tissue.—*Med. Times and Gazette*, Nov. 15, 1856.

31. *Displacement of the Trachea, and its Separation from the Larynx, from the Kick of a Horse.*—Dr. BERGER, Surgeon-General of the Prussian Army, reports the following unique accident:—

Cannonier B—, of the Artillery of the Prussian Guard, was kicked by his horse a little below the lower jaw, whilst engaged in washing its hind hoofs. A small, unimportant skin-wound exhibited itself at the edge of the jaw, and some blood, but not much, flowed from the mouth. The neck, however, rapidly swelled to an extent sufficient to materially impede respiration. The patient complained only of a peculiar sensation of weight in the epigastrium, and stated that he felt as if blood had collected in his windpipe and prevented his breathing freely. There was no fracture or injury to be discovered in the larynx. The patient was at once bled, generally from the arm and locally by leeches, without the slightest effect upon the orthopnoea. The latter symptom continued to increase rapidly until so fearful an emphysema had established itself, that

the chest, neck, and face of the man were swollen to a frightful extent; and in this state, suffering great agony, he died, within an hour and a half of the receipt of the injury.

The *post-mortem examination* discovered a complete rupture of the trachea from the larynx, the latter being uninjured. The separation commenced at the left side of the cricoid cartilage, proceeding to the right as far as the middle of the posterior edge, so that a third part only of the union of the trachea and larynx remained intact. Several of the cartilaginous rings and ligaments of the trachea were ruptured, and it was found filled with coagulated blood. The thyroid, cricoid, and arytenoid cartilages were quite uninjured. The heart was in a normal condition; the lungs were congested, and of an unusually dark colour.

This I regard as a very singular and interesting case; not only from the peculiar nature of the injury sustained, but from the great disproportion of the external wound to the internal damage effected. A slight abrasion of the skin at the edge of the lower jaw was all that could be observed or discovered during life, and yet the autopsy displayed organic dislocation and rupture of so extensive a character that death ensued within an hour and a half of the occurrence of the injury. Whether, had its true nature been at once ascertained, an immediate resort to tracheotomy might have been attended with temporary advantages, may, perhaps, be a question. I say temporary advantage, for, with so serious a displacement, anything approaching to a cure could not, I apprehend, be expected.—*Lancet*, Sept. 6, 1856.

32. *Gunshot Wounds of the Abdomen*.—Dr. GEO. H. B. MACLEOD, in his Notes on the Surgery of the War (*Edinburgh Med. Journal*, Sept., 1856), states that "The abdomen has been severely contused by gunshot 113 times; of which number 25 died in the Crimea, 35 were discharged to duty, 51 were sent to other hospitals or stations in the rear, and two remained in hospital, the result being undetermined at the end of the year. The cavity has been penetrated, and the contents injured, 80 times; and of these 69 died, and the remainder were sent away from the Crimea, it is to be presumed, mostly recovered. Of these 80 cases and 69 deaths, 9 cases only and 5 deaths were injuries of the solid viscera. 41 cases appear in the return as 'doubtful,' 17 of whom died. The contents of the abdomen have been perforated 27 times, with 16 deaths; and of 3 cases which are entered separately, as 'ball lodged in abdomen,' all died. Thus it seems, that while severe wounds of the chest have been more numerous than severe injuries of the abdomen, that the latter have been very much more fatal. The strong aponeurotic wall of the abdomen frequently deflects balls, and causes them to make a greater or less circuit superficially. That these wounds of the walls, if followed by sloughing, as they not unfrequently are, must so weaken the parietes, as to make the patients who have thus suffered, more liable to herniary protrusions than formerly, is extremely probable. Shell wounds of the surface have been those in which extensive sloughing has appeared most commonly. In one case of this nature, nearly the whole parietes of the abdomen disappeared by sloughing. Many of the cases which prove fatal on the field are said to be penetrating wounds of the solid viscera of the abdomen—the hemorrhage is so great and uncontrollable. As the fatal result in wounds of the hollow viscera arises from the extravasation of their contents, their mortality chiefly depends on their extent. Their *early* brought under judicious treatment, will save many which appear desperate. In many cases it is impossible to say with certainty whether the ball has traversed the cavity or not, even though the apertures of entrance and exit would appear to leave no other view possible, than that the cavity and its contents have been perforated. Such was the case, particularly in the following instance: A ball struck a Frenchman just above the crest of the ilium, and about four inches from the spine, and escaped close below the inner end of the clavicle of the same side. At the time he was wounded, this soldier was on his knees, as he was rising from the ground on which he had been lying. He had hiccup and considerable prostration for three days, and also an attack of pleurisy, all of which symptoms left him in about a fortnight from the time of

his being injured, and he recovered perfectly. In this case one would suppose, that not only the abdominal cavity, but probably the liver, diaphragm, and lungs, had all been wounded; but yet the slight symptoms which followed would rather show that the ball had run close under the integuments, probably piercing the diaphragm close to its anterior border, and that none of the viscera of the trunk were injured.

"I have heard of one case as having occurred during this war, in which, subsequently to a gunshot wound of the abdomen, the ball was passed by stool during convalescence, but I have been unable to get the fact properly verified. The treatment followed in gunshot wounds of the abdomen has not, so far as I know, in any way differed from that usually pursued. Opium, in full doses after bleeding, has always appeared most to be relied on. I have only notes of three cases of recovery out of a considerable number of instances of penetrating wounds of the abdomen from gunshot, which I saw in the Pera Hospital during the winter of 1854. In one, a fistulous opening existed for a considerable time, below and to the left of the umbilicus, and the other had a similar opening in the left iliac region. In both cases a cure was effected without any surgical interference. In a third case, the ball entered in the dorsal region, and about one and a half inches from the spine on the left side, and escaped on a level with and to the left of the umbilicus. No bad symptom ever arose, except the temporary appearance of a herniary protrusion at the wound in front, which was easily returned."

33. *Gunshot Wound of the Bladder.*—Dr. GEO. H. B. MACLEOD, in his Notes on the Surgery of the War (*Edinburgh Med. Journal*, Sept., 1856), relates the following very remarkable case:—

Griffith, private 57th Regiment, was admitted into this Hospital in June last. A ball had entered his left hip close to the tuber ischii, and escaped on the abdomen, two inches above the symphysis, a little to the right of the middle line. Urine escaped by the anterior opening. A catheter was passed into the bladder and retained there. He had no bad symptoms of any kind for twelve days. His urine passed by the catheter and also by the opening on the abdomen. His pulse remained quiet and his abdomen without uneasiness. His general health was unimpaired, and his bowels acted regularly. The posterior wound, through which urine never passed, closed rapidly. On the twelfth day, he had severe pain in the abdomen, which was, however, relieved by a dose of opium, and he never afterwards had a bad symptom or uneasy feeling, except the irritation occasioned by the urine flowing on the abdomen, which could not be altogether prevented. His urine was loaded with mucus and pus during the period of cure, and he passed several small pieces of bone both by the urethra and by the abdominal wound. At the end of six weeks he could retain his urine, and pass it at pleasure by the natural passage, in a full stream. For a month he had been unable to prevent his urine flowing constantly away. In about two months from the period of his admission the wound on the abdomen was completely closed by the use of nitrate of silver. His strength, which had somewhat failed, was at that time quite restored, and he was walking about the ward convalescent. At this period he passed from under my notice, but I learned that the wound on the abdomen had reopened, and that he could pass his urine, without any pain, through this opening, in a continuous stream, but that untimely, before he went to England, it had permanently closed.

34. *Successful Ligature of the Arteria Innominata.* By M. PEIXOTO.—M. Moura, a distinguished Portuguese Doctor of Medicine, aged thirty-three, was the subject of this case. An erectile tumour of the right ear began to develop itself in 1832, and in 1845, M. Nélaton tied the posterior auricular, considerable hemorrhage following the fall of the ligature. After temporary amendment, the tumour again made great progress, and frequently gave rise to serious hemorrhage; the patient being then at Rio Janeiro, M. Peixoto tied the common carotid in the middle of its course, 14th November, 1851, and on the 27th, surrounded the tumour itself by a ligature, which induced its separation by sloughing. On the 4th December, some bleeding was observed where

the carotid had been tied, the ligature not having yet come away; and as the hemorrhage recurred again, it was resolved to apply a precautionary ligature (*d'attente*) lower down. On the 8th, this was executed on the trunk of the innominata; and in a later communication to the Academy, the author states the cure was completed in two months.

M. Velpeau, reporting upon this case (*Bull. de l'Acad.*, tom. xix.), observes, that as far as he is aware, this is the first example of a cure resulting from the artificial obliteration of this artery; although the cases of accidental occlusion published by Pelletan, Martin-Solon, and Darrach, had already shown that its occlusion did not deprive either the arm or the brain of a sufficient supply of blood. The cases of operation have hitherto all terminated fatally. Mott, who first practised the operation in 1818, lost his patient on the twenty-sixth day. Gräfe's patient died on the sixty-eighth day, Bland's on the eighteenth, and Hall's on the sixth. In Lizar's case, death occurred at the end of three weeks. After M. Kühl's operation, in which the ligature comprised the subclavian and the carotid close to the innominata, death took place on the third day. A patient of M. Arendt's died on the eighth day; and two operations performed by M. Bujalski were followed by death in two or three days. Finally, M. Hutin lost his patient on the eighth day. So that ten operations have furnished as many deaths.

After all, M. Velpeau adds, this is not an example of ligature of the innominata, properly so called; for although a ligature (*d'attente*) was applied to and flattened the vessel, this was not tightened. The patient was cured, but nothing allows us to affirm that the ligature bore rather upon the common trunk than upon the origin of the carotid alone. Nor is there anything that absolutely proves the closure of the innominata, if closed it be, not to have taken place as a consequence of the first ligature, rather than under the mere influence of a ligature *d'attente*.—*B. and F. Med.-Chirurg. Rev.*, Oct., 1856, from *Mémoires de l'Acad. Imperiale de Méd.*, tom. xix. Paris, 1855.

35. *Treatment of Aneurism by Manipulation*.—Mr. FERGUSSON read a paper on this subject before the Royal Medical and Chirurgical Society (Nov. 11th, 1856). He explained this term to mean peculiar forcible squeezing of the aneurismal tumour, with the intention of breaking up the fibrin supposed to be within; so that, being displaced, it might possibly block up the distal end of the tumour, or the artery leading from it. After sketching the various means whereby Nature is supposed to bring about occasional spontaneous cures, cases having come under the author's observations, in which spontaneous cures had seemingly been caused by displaced fibrin, the author proceeded to show that, while surgeons had in some degree followed the dictates of Nature, as gathered by experience in their attempts at cure, they had not, as far as his knowledge went, attempted to imitate the actual displacements of fibrin by any active interference on their part. He then explained how he had for many years entertained the idea that a cure by such a plan might possibly be effected. After many years watching for a case, in which for want of a better plan, such a one as he indicated might be used, a case of aneurism of the right subclavian artery, between and outside the scaleni, came under the author's notice in February, 1852, wherein, appreciating all the known dangers of the usual mode of treatment, he resolved to try this plan: The flat point of the thumb was laid on the aneurism, which was about the size of a hen's egg, and, when the sac was emptied of fluid blood, the inner surfaces and supposed contents were rubbed against each other. The pulse, which had been carefully examined, was immediately arrested in all the vessels below the aneurism, and the patient became faint and giddy. In six or seven hours the pulsations returned, but the author repeated the manipulations the next day with a similar but not lasting effect on the circulation in the arms; for it was not till seven or eight days that circulation could be readily detected in the arteries. The tumour gradually diminished in size and in force; a pulsation, and various indications, particularly the gradual enlargement of a branch of the subclavian artery, at the root of the neck; the supra-scapula, or the transversalis colli, gave every hope that a cure

was in progress. After seven months, at which date the tumour was much diminished, the patient had a severe feverish attack, accompanied with excruciating pain in the tumour, and died after a few days' illness. On dissection, it was found that the axillary artery was blocked up, and that the tumour had suddenly extended or had given way in the direction of the axillary plexus of nerves, which was supposed to account for the excessive pain. Another case, in most respects analogous to the above, came, ere long, under the author's notice, and was treated in the same way. A series of phenomena followed, similar in many respects to those observed in the former. The tumour in this case underwent a slow change, and ultimately disappeared between the twenty-second and twenty-fourth months after the manipulation. After discussing the principal phenomena connected with these cases, and expressing an opinion that the results in many respects corroborated the views of the author, he left the particulars for the further consideration of those who felt interested in the subject.—*Med. Times and Gazette*, Nov. 15, 1856.

36. *Dissecting Aneurism*.—Mr. YOUNG related to the Reading Pathological Society an interesting case of dissecting aneurism of the abdominal aorta. It occurred in a female aged 57. She was, when first seen, suffering from severe pain in the bowels, back, and left side. She was restless, the countenance was pale, tongue moist and covered with a white fur. The pulse was 70. There was sickness with frequent and painful micturition. Mustard poultices, with opiates, demulcents, and diuretics were administered, but the sickness increased, and she sank suddenly. It was ascertained that, in lifting a saucepan on the fire, she felt something give way, which immediately was followed by the fatal symptoms. At the autopsy, a large clot of blood was found effused into the cellular tissue behind the peritoneum, pressing forward between the two layers of the mesentery and extending into the pelvis. In getting through the blood to the aorta, the cellular coat was found to be separated from the fibrous about four or five inches, towards the bifurcation. There was a slit in the fibrous coat about one inch in length, somewhat higher up than the cellular. The inner and fibrous coats were found to be red and soft, so as to tear easily, and they were readily detached from the outer. There were also several patches of arthromatous, cartilaginous, and bony deposits. Mr. Young considered that the inner and fibrous coat had been the seat of the disease for some time, and which, in all probability, gave way on the morning of the exertion of lifting the saucepan, thus producing the dissecting aneurism; but that the death was caused by the rupture of the external coat during the act of vomiting.—*Assoc. Med. Journal*, Sept. 20, 1856.

37. *Best Treatment of Varicose Ulcers and Varicose Veins*.—The treatment of varicose veins is a practical every-day subject, inferior to none in interest for the hospital surgeon. Indeed, allied as this affection is, externally, to questions of practical surgery on the one hand, and depending for its causes on relations of the general venous system and general internal health on the other, a wide field of speculation is afforded as to treatment. In hospital practice, accordingly, as the practitioner may be more of a physiologist and anatomist, or more or less influenced by the ordinary routine of simple surgical treatment, ligature of veins, constitutional treatment, or means of blocking up these vessels, will be trusted to, previous to healing the varicose ulcer. A good deal of the danger of ligature of veins is found to originate in the fact that the vein is enlarged; and the ligature, when it should go deeper than the vein, will be found to have wounded or transfixed the vein, and caused phlebitis.

Mr. Paget's experience every year assures him more and more of the superior value of the treatment of varicose veins by the caustic issue, or the extemporized mixture of lime and potash. There is no mode of treatment yet discovered, according to Mr. Paget, which is entirely free from risk; but, from pretty extensive inquiries in the hospital practice of such surgeons as Sir B. Brodie, Mr. Lawrence, Mr. Skey, various hospital surgeons in the provinces, and in France and Germany, etc., Mr. Paget is inclined to the impression that the treatment of varicose ulcers and varicose veins is most safely and most effectually

ally conducted by means of local applications of caustic issues on the surface, which thicken the coats of the venous trunk.

A very well-marked case of varicose ulcer of the leg and leg and foot, which incapacitated the poor young man from employment and deprived his family of support, has been for some weeks in St. Bartholomew's, as well as a second case, where the varicose vessel gave way, but has again healed up. The former case is that of A. D—, a young and apparently otherwise active and healthy man aged 28. He has been all the present month (September) under treatment for a varicose condition of the veins of the lower extremity: his disease consists rather of a very troublesome ulcerated condition of the ankle and foot, which he cannot himself conceive to be dependent on the state of the veins. The history he gives of the case is not very defined, or is but a recapitulation of a set of abortive attempts to cure his ankle by ointments, lotions, salves, etc., each in its turn recommended to him as the most specific thing in the world for an inward disorder of the constitution, but still only making the disease worse.

The form of caustic used by Mr. Paget consisted of potassa fusa  $\mathfrak{D}\text{ij}$ , quick-lime  $\mathfrak{Z}\text{j}$ , separately in powders in small phials, and subsequently mixed with a glass or asbestos rod at the bedside, with spirits of wine, when used. A dozen or two of small pieces of common adhesive plaster are next obtained, each the size of a penny, a small circular hole being cut in each, of the size of a pea, or a silver threepence. One of these perforated pieces of plaster is placed over each projection or varicose enlargement of the vein, a very small quantity of the caustic paste is next applied with a bone spatula to the skin over the vein, in the circular hole left in the plaster; ten to twelve or fifteen minutes will be sufficient time for the issue to produce its effect, at the expiration of which period, the whole limb is carefully sponged with warm water, and all the plasters and caustic washed away. Little else was necessary in this case, as in the general class of these cases, the issue merely requiring simple dressing, while the ulcers in the ankle went on healing *pari passu*.

As a local application to the ulcer during the action on the varicose vein of the issue, any simple ointment or black wash is all that is required.—*Association Medical Journal*, Sept. 27, 1856.

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38 *Caustic in Nævus*.—Dr. MACKE recommends the following caustic as a highly useful application to *nævi materni*, especially in young children. Corrosive subl. 4, collodion 30 parts. It is to be applied by a small brush, and desiccation takes place so rapidly that the action of the caustic does not extend beyond the spots it is applied to. A solid eschar, one or two lines in depth, falls off in from three to six days, and the pain induced is inconsiderable, and of short duration.—*Med. Times and Gaz.*, Oct. 25, from *Revue Méd.*, 1856.

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39. *Iodine in Hygroma*.—M. GROSE has found, in sixteen cases of hygroma, the application of tinct. iodine twice a day, upon compresses secured by means of a bandage, always attended with success. In very delicate skins the first applications may excite vesication, and then longer intervals may be required, or the iodine may be diluted.—*Moniteur des Hop.*, No. LXXII.

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40. *Radical Cure of Unstrangulated Hernia*.—M. GERDY's operation for the radical cure of hernia has not found much favour in this country; and this coldness can hardly be wondered at when it is recollected that the operation is connected with very serious risks, and has for its object the relief of a displacement which entails, in simple cases, no great inconvenience. There are, however, patients who become tired of wearing trusses (especially as the latter sometimes exercise a very uncomfortable pressure), and they request to be freed, by operation, from a complaint which often embitters life.

It would appear by a thesis, lately defended by M. Amen at Paris, that the operation is much more resorted to in France than in this country; and Gerdy's statistics are certainly calculated to remove apprehensions as to the danger of peritonitis; for he found only six deaths out of 700 operations, two of the six being unconnected with the actual surgical proceedings. We need hardly say

that Gerdy's method consists in offering at the ring the resistance of a cutaneous plug, formed by invagination of the skin in the inguinal canal. It is also well known that M. Velpeau obliterates the inguinal apertures by injections of iodine into the sac.

M. Amen gives seven cases treated by these injections; out of these, three were relieved, and four completely cured. The method by invagination was used twice by M. A. Guérin at the Charité, and once by the author himself. After these latter operations, it is important to induce the patients to wear well-made bandages, at least for a twelvemonth; and we perceive that, at the Charité, Mr. Bourjeaud's were considered by M. Guérin to be the best calculated to promote the eventual cure, as they exercise sufficient compression without injuriously distressing or chafing the abdominal walls. It is plain that, in such instances, steel trusses could not be thought of; and perhaps there would be fewer persons desirous of subjecting themselves to the radical cure, if these elastic bandages were more extensively used.

One of the cases treated by injection is worth quoting: A waiter, aged 29, was admitted under M. Maisonneuve at the "Hôpital Cochin." Hernia, right inguinal, and of six years' standing. He wished for the operation, because the hernia was troublesome, and gave him a great deal of pain. On the 5th of September, 1854, equal parts of tincture of iodine and water were thrown into the sac, and left three or four minutes. Severe inflammation of the parts ensued; but the tumour diminished after the eighth day, and by the fifteenth it was of the size of a walnut, perfectly plugging the ring. Six months afterwards the tumour was the size of a nut, and the patient made all kinds of exertions and efforts without thinking any longer of his hernia.

One of M. A. Guérin's cases of invagination refers to a man-cook, aged 22. Small inguinal oblique enterocoele, six years; habitual pain makes him seek the radical cure. On the 22d of February, 1856, M. Guérin operated by invaginating the integuments to the bottom of the canal, and fixing the skin by a strong thread and bead. Inflammation ran very high until the fifth day after the operation, when the thread and bead were removed. On the 6th of March, fourteen days after the invagination, the ring was obliterated, and six days afterwards the patient left the hospital, with one of Mr. Bourjeaud's elastic bandages, which he is cautioned to wear for some time.—*Lancet*, Oct. 18, 1856.

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41. *Use of Chloroform in the British Army during the late War.*—Dr. MACLEOD asserts (*Edinburgh Med. Journal*, Sept., 1856), "that during the whole course of the war, there has been only one death which can, with any fairness, be said to have arisen from the effects of chloroform. It is impossible to say in how many cases it has been used; but as very few surgeons, indeed, failed to employ it on all occasions, it must have been administered to a very large number of patients. The evidence in its favour has been overwhelming, and sufficient to convince all, with one or two exceptions. Its use in amputations of the upper third of the thigh is considered questionable by a few surgeons of experience, under the old mistaken notion that its action is one of depression; but the vast majority of the surgeons of the army indorse the opinion entertained at home, that, when properly administered, chloroform prevents fatal depression in place of producing it. The patient who died was anæsthetized sitting in a chair. Artificial respiration, by pressing on the ribs, was, I understand, the remedy used to resuscitate him. Several other patients are also said to have died from the effects of chloroform administered to them, but few will subscribe to the view which attributes death twenty-four or thirty hours after a capital operation, for which the patient was anæsthetized, solely, if at all, to the employment of the chloroform."

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## OPHTHALMOLOGY.

42. *Malignant Disease of the Eye.*—Mr. F. A. BULLEY, in some "Notes of Surgical Cases in the Royal Berkshire Hospital," communicated to the Reading

Pathological Society, states that two specimens of malignant disease of the eye in children were presented, one by Mr. G. MAY, the other by Dr. MCINTYRE. Mr. May's case did well up to the time of the report, and recovered the effect of the operation. Dr. McIntyre's was a case of medullary sarcoma of the eye. The patient was three years old, and was first seen by him in Dec., 1855. Its complexion was fair; general aspect strumous; the iris was bright blue. The pupil of the affected eye was dilated to the utmost extent, the iris being obliterated to a mere line: whilst the ball was considerably enlarged, and of a pale blue colour. At the back part of the eye a vegetative growth was found, of metallic appearance, which had, it was said, been gradually increasing. The child was latterly feverish and restless, and had violent startings in sleep. Removal of the organ was recommended, and coincided in by Professor Ferguson; and the operation was performed, under chloroform, on Jan. 7th, 1856. The child recovered from the operation; the fever and startings in sleep having entirely subsided. On Feb. 4th it was seized with convulsions, which gave way to the usual treatment. On the 7th they recurred, and terminated fatally.

A *post-mortem* examination revealed the existence of the disease, to the depth of an inch in the base of both anterior lobes of the brain; and the commissure of the optic nerves was almost destroyed by it. The portion affected was soft, and of the appearance of raspberry cream. The sinuses were loaded, as well as the cerebral substance generally.—*Assoc. Med. Journal*, Sept. 13, 1856.

43. *Value of the Ophthalmoscope in Eye Diseases—Use of the Upper or Lower Section in Keratonyxis—Curiosities of Ophthalmic Practice.*—The recent introduction of the ophthalmoscope into the surgery of diseases of the organ of vision begins to be followed every year by better and better results. Too much, at first, was expected from it in eye diseases, and some amount of disappointment speedily followed its first introduction—the certain forerunner very often, in science, of a better state of things. Every season now, since the labours of Jäger especially, the ophthalmoscope gives us at least negative results of very great value. A very long experience, indeed, and comparison of cases, is necessary before the student or surgeon begins to see anything at all; but then it is very remarkable how easily various inflammatory or other morbid deposits are discovered in the retina, “Jacob’s membrane,” lens, vitreous humour, &c. Chalk-like deposits in the “membrane of Jacob” are, for instance, common in old people; inflammatory thickening of retina, &c., are at once detected.

An interesting case of double cataract was recently operated on by Mr. Bowman, and is here appended, where the examination beforehand with the ophthalmoscope at least pointed out the cataract as coming within a class or category of cases where operation was likely to succeed, as the state of the case this week proves. The lenses appeared at first to be marked with radiating lines or central streaks, as in cases generally where the diseased part is easily enucleated by keratonyxis, and where the ophthalmoscope shows that the cause of blindness is not amaurotic, but confined almost exclusively to the lens. The August and September months in hospitals are interesting for ophthalmic cases, as various German and French ophthalmologists visit London, and are attending Mr. Bowman’s *clinique*.

There are few operations which require such delicacy of hand and touch as those connected with cataract, so as not to injure the iris, or, by rough manipulation, to extract the vitreous humour, and leave untouched the lens. We have seen the latter very recently done (as who has not?), and mention it here, as the cause was a too small section of the cornea. Here again there is a difficulty; for if the section be too large, the same may occur; experience like that of Mr. Bowman, or Mr. Critchett, or Mr. Dixon, deciding the precise character of the section that should be made.

Wm. Smyth, aged 40 years, applied at various hospitals, but at last came to the Ophthalmic. He is quite blind; his blindness gradually set in, he says, and has been coming on twenty years. He has followed farming occupations, but now is no longer able to see or work. In short, in such an old standing case of blindness, there seemed little or no hope; but, as a last resource, he came under Mr. Bowman’s care.

Examination with the ophthalmoscope discovers very extensive disease of both lenses. Various rough central radiating planes are well marked, and alternate with finer lines. The posterior surface of the lens in each eye seems almost similarly affected; while, under the effects of atropine dropped into the eye, one perceives the lines of planes branching more and more finely, with a fine striated haze, as if the cataract or cause of blindness was simply in the lens, and came somewhat under the control of the zonula of Zinn, or the thin layer which connects the anterior margin of the retina with the circumference of the lens.

Mr. Bowman extracted both lenses by *lower* sections of the cornea, as the eye was irritable and turned up. A small piece was also sliced out of the lower part of the left iris. The lenses were found soft. The operation did not differ from a hundred of others seen here every year.

A week subsequently the result of the operation was perceived to be very good, with the exception of some opacities still remaining; these, in a few days after (September 5), were broken up by a needle again introduced; which, in its turn, was followed by absorption, and a condition of vision this week quite wonderful, judging by the result of many cases of a similar kind.

Amongst the "curiosities" of surgery, Mr. Critchett related, in connection with this patient, a case of closed pupil or cataract in an old lady, unexpectedly cured by an accident! The handle of a saucepan was pushed into her eye, and poked out the lens, with the most admirable effect on her vision. In another similar case, a man pushed a curette into his eye by slapping his hand against the surgeon's hand. In a case of cataract with closed pupil we saw a good cure also recently effected by tearing the pupil with two needles. A singular case of closed pupil, with congenital cataract, was also mentioned incidentally, where, on a single application of atropine, vision was restored (temporarily, of course) almost in an instant. The patient seemed in a dream of astonishment.—*Association Medical Journal*.

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## MIDWIFERY.

44. *Placenta Prævia*.—Mr. T. O'CONNOR relates the two following examples of this.

CASE I. was that of a woman, aged 35 years, in her seventh pregnancy; her previous labours had been without complications of any kind. I was called to her a fortnight previously to her labour having come on; and a more frightful case of syncope I have no recollection of witnessing. The bed and clothes were saturated with blood; the woman's face was pale as death; she was lying across the bed apparently lifeless. Having learned from the attendant that she expected to be confined in a month, I made an examination, and found the os uteri undilated; there were no labour pains. Although the hemorrhage had ceased, I thought it advisable to plug the vagina, feeling that further discharge, in any quantity, must be fatal. As soon as she was able to swallow, I gave a drachm of Hoffmann's anodyne in a little water, and repeated it every fifteen minutes for four or five times. She then became for a moment conscious, then incoherent, and immediately the fainting returned in an appalling degree. This condition, alternated with momentary conscious intervals, lasted two hours, every moment of which I expected to see her expire. By this time, I contrived to administer with a spoon two ounces of compound sulphuric ether. A tranquil sleep ensued; and I left her with injunctions that I should be sent for when she awoke, or if flooding or any untoward symptom occurred. The sleep lasted two hours, when, agreeably to my instructions, I was again summoned, and found her refreshed and doing well. I then withdrew the plug, as there had been no return of flooding; and as it had been now four hours in the vagina, I enjoined, for the present, the recumbent position. After two days attendance I discontinued my visits, as there was no appearance of labour,

and as the woman was verging towards convalescence, having taken care that the bowels were relieved by castor oil.

In a fortnight afterwards, I was again called to the same person early in the morning, in a great hurry. I learned from the messenger that, while turning in bed, she had been seized with flooding to an alarming extent, and had fainted. On arriving at the house, I found on the boards, under the bed, a pool of blood, which must have amounted to two or three pints, having filtered through the bed after inundating the clothes. The woman was faint, and gasping for breath; the hemorrhage had ceased. On examination, I found the os uteri patulous and dilatable, capable of admitting my middle finger, which I passed up, and then discovered the cause of the hemorrhage. From the first, indeed, I had suspected, but could not before satisfy myself by touch, as the dilating process had not then commenced, that the placenta was adherent to half the circumference of the os tincæ. The head was presenting. As the woman still continued alarmingly faint, I administered two drachms of compound spirits of sulphuric ether in a little water. I separated the placenta from its attachment to the os uteri, punctured the membranes with a long probe, and, having infused a couple of drachms of ergot in half a pint of boiling water, gave a fourth part of this every twenty minutes. This brought on active labour after the third dose; and in two hours the woman was delivered of a child of more than average size, which gasped two or three times, and expired. My patient recovered from this fearful state in an incredibly short time, and is now in robust health. Not the least remarkable point about those cases generally is the rapidity with which the women recover.

CASE II. I was hurriedly summoned to a woman, aged 28 years, in her third pregnancy, and whose previous labours had been natural. Her husband, who was the messenger, in great excitement said his wife must be either dying or dead, as he thought no person could survive such a loss of blood; and truly, on arriving at the house, which is three miles from my residence, a spectacle presented itself calculated to appal any one who was not totally indifferent to human life. The chamber utensil (which was a large one) was filled with blood; the floor in several places was covered; the bed and clothes were soaked; the woman was passing rapidly from one faint to another. I immediately gave her two drachms of Hoffmann's anodyne in water, and proceeded to examine her. I found the os uteri so dilated as easily to admit two fingers; the placenta was adherent all round, with a rent in its centre, from which gushed the torrent of blood which had well nigh swept off my patient, and from which oozed still blood in small quantity. As the woman had not yet recovered from the syncope sufficiently to justify me in proceeding to deliver, and as there was still hemorrhage—small in quantity, it is true, but liable to be increased to a gush by the first pain or the first rally from the faintness—and as she was at this time in the worst possible condition to bear any further loss of blood, I decided on firmly plugging the vagina, so as to place a pad against the rent in the placenta, and on assisting her out of the syncope, before attempting delivery, I therefore repeated the ether at intervals of ten or fifteen minutes during an hour, to the amount of a drachm at each dose. I then withdrew the plug, and administered the ergot, as in Case I. Having introduced my hand, and separated the placenta from its attachment to the os tincæ, after a most painful and bloody process, I succeeded in seizing one of the legs of the child. As the os was dilatable, I had little difficulty after this in completing the delivery, having saved the lives of mother and child.

*Remarks.*—I attribute the safety of both these women to the use of Hoffmann's anodyne. In Case I., the hemorrhage was very profuse, and its effects were terrible for the first few minutes; indeed, there was a fearful struggle between life and death, in which the latter would, I have little doubt, have obtained the victory, had he not been combated by the ether. What occasioned the hemorrhage? The placenta is adherent to half the circumference of the os uteri; the latter, in its progress towards development, or in other words, during the increase of its surface, being elastic or extensible, moves away from part of the placenta which is not endowed with elasticity, and lacerates some of the vessels of the latter: hence the gush of blood, which may

then and there be fatal by syncope, if the nervous energy is not excited by some agent capable of producing a powerful though not prolonged stimulus. That agent is, without doubt, Hoffmann's liquor. If we drag our patient through the first shock, we have routed the enemy for the present; the system will have righted itself before there is a return of the hemorrhage, when a new mode of proceeding may announce itself. The plug in the vagina performs no mean part in arresting the danger; for, a firm pad being placed in close contact with the lower walls of the uterus, these in turn press the open mouths of the vessels, and secure the formation of a clot. The ether must be administered freely and fearlessly. In support of this opinion, I may here mention a case of unavoidable hemorrhage, which I had the management of in the autumn of last year, and in the latter stages of which I had the valuable assistance of a highly intelligent physician and esteemed friend from a neighbouring town. In this case, one fit of fainting followed another in such rapid succession, with jactitation of arms and legs, relaxation of sphincters, and that utter state of prostration which too frequently is the immediate herald of death, that we did not hesitate to carry the use of this drug to the extent of between four and five ounces in three hours, with the happiest result. I mention this by the way, to fortify the opinion that this drug ought to and must be administered freely, in unavoidable hemorrhage, threatening by its extent the immediate death of the patient. Astringents are useless in this class of cases; if the loss of blood is profuse, the patient will die before they produce any effect, if effect is expected from them; and if the hemorrhage is not profuse, the patient will do equally well without them.—*Assoc. Med. Journal*, May 16, 1856.

45. *Quinine in Puerperal Fever*.—M. BEAU, during a recent epidemic, has been trying, with considerable success, at the Cochin Hospital, quinine in large doses. He prescribes, at the onset of the disease, an emetic, or emetocathartic; and, immediately that its operation has ceased, he gives the quinine in quantities from at least 15 grains to 30 grains, according to the severity and tenacity of the case, in the twenty-four hours, in doses of 7 grains, taken at equal intervals. These doses almost inevitably give rise to the symptoms of quinine intoxication, which, in some cases, go on to the extent of intense maniacal delirium. It is only upon the condition of these symptoms being induced that benefit accrues. The first patient so treated manifested all the symptoms of intense puerperal fever, and had a pulse of 160; and, as she recovered, M. Beau treated all the women who subsequently took the disease in the same manner, and that from the beginning of the manifestation of its presence. From this time the mortality that had prevailed ceased. This agent has not, however, in any case, completely and immediately arrested the progress of the disease. All powerful, in some sort, over the febrile condition, and over all the assemblage of grave general phenomena, which attend the local lesions of the abdomen, and which might be termed the malignant elements of the disease. It exerts no effects upon these lesions themselves. It, as it were, decomposes the disease, and reduces it to its mere local elements; but the peritonitis or metro-peritonitis, which, from having been super-acute, takes on only a sub-inflammatory character, is henceforth easily dealt with. M. Leudet, and other practitioners, have already employed it as a prophylactic in this disease with success; but M. Cazeaux derived no benefit from some trials he has made of it.—*Med. Times and Gaz.*, Oct. 25, from *Gaz. des Hop.*, No. LXXIX.

46. *Vomiting in Retroversio Uteri*.—M. BRIAN draws attention to a case in which the obstinate vomiting of pregnancy seemed to depend upon partial retroversion of the uterus, it ceasing soon after reposition had taken place. Prof. Moreau, who saw the case with him, informed him that he had several times met with similar cases, which were as effectually relieved.—*Ibid.*, from *Bull. de Thérap.*, t. li.

47. *Cæsarean Section; Lives of both Mother and Child saved*.—M. ALLVIN, of Tournehem, relates (*Journal de Méd. et de Chirurgie Pratiques*, Jan., 1856) an instance of this. The mother was 22 years of age, rachitic, the antero-posterior dia-

meter of her pelvis less than two inches, primipara. The child was a well-formed male. The sides of the incision in the abdomen were kept in contact by means of compresses and bandages, M. A. being opposed to sutures in these cases. A nearly uniform progress was made towards recovery, and at the date of the report both mother and child were quite well.

48. *Asphyxia of new-born Infants and its Treatment*.—Dr. MARSHALL HALL read before the Harveian Society (Nov. 20th, 1856), the following remarks on this subject:—

“The newly-born infant and the newly-born of many of the mammalia are in a peculiar condition, both in an anatomical and physiological point of view.

The foramen ovale and the ductus arteriosus being still open,<sup>1</sup> the blood of the pulmonary circulation is still diverted from the channels it is destined to pursue, and in this respect it resembles the reptile tribes.

Respiration, and every stimulus, *except temperature*, being absent, the excitability of the spinal system and the irritability of the muscular system exist in their highest condition, according to a law of animal life which I announced some years ago, viz., that these faculties are throughout the animal kingdom, *inversely as the stimuli*.

The new-born foetus is, therefore, a creature of high excitability and irritability. But such an animal bears the absence of stimuli precisely in the same ratio. Respiration is the chief of these stimuli; therefore, to arrive at the subject of this paper, the new-born foetus can long survive the absence of respiration.

The condition of apnoea and of asphyxia, without the absolute loss of life, is therefore of long duration, and the hope of restoring the stillborn infant is long protracted; so must, therefore, our efforts at resuscitation be.”

[*Note*.—I must here briefly advert to the well-known question of Harvey,<sup>2</sup> and the not less famous experiment of Buffon, leaving them to your meditation. Harvey asks why the infant which has never breathed bears the suspension of respiration longer than the infant which has once respired?<sup>3</sup> Buffon had the idea that if the foetus of the class mammalia was born under water, and respiration prevented, the foramen ovale and ductus arteriosus would be prevented from closing, and that in this manner life might be protracted under water. A chimera! for what respiration would there be if both placental and aerial respiration were excluded? But life does not exist without respiration.]

“These efforts consist—

1st. In measures to induce sufficient respiration; and,

2d. In measures to maintain the circulation.

In order that respiration may be effected, we must adopt the following means:—

1st. The infant must be placed in the prone position, in order that all fluids which might obstruct the entrance into the windpipe may flow away.

2d. Nature's mode of operation being to impress the trifacial and cutaneous nerves, the external *excitors* of respiration, by the external cold, we must dash a few drops of cold water on the face and the general surface.

3d. We must proceed, having failed to *excite* respiration, to *imitate* the respiratory movements.

This must not be done by *any forcing* means; even the human breath, forced into the infant's lips, may *tear* the delicate tissue of the foetal lungs. We must, on the contrary, adopt some measure of *drawing* the air into the lungs. This is effectually accomplished by first placing the little patient

<sup>1</sup> This patent condition of the foramen ovale and ductus arteriosus continues, according to the researches of M. Flourens, during eighteen months of extra-uterine life in the human species.—*Histoire de la Découverte de la Circulation*, pp. 67, 69.

<sup>2</sup> *Exercitatio Anatomica Secunda de Circulatione Sanguinis*. Guilielmi Harveii, p. 258. Glasceæ, 1751.

<sup>3</sup> “Cur foetus in utero, non respirans aerem, usque ad mensem decimum, ob defectum respirationis non suffocatur? Cur natus in septimo, vel octavo, quam primum aerem inspiraverit, inhibita postmodum respiratione, ob defectum aeris suffocatur?”

briskly in the prone position, to clear the fauces; then pressing gently on the back; and then removing that pressure, and turning it gently on the side and a little beyond.

4th. Meantime the limbs are to be rubbed, with gentle pressure, upwards, to promote the circulation, by propelling the venous blood towards the heart.

5th. At proper intervals we must again endeavour to *excite* the respiration physiologically.

The infant is to be placed with the face prone, and douched alternately and rapidly with water of the temperatures of 60° and 100° Fahr.

High and low temperatures are equally excitants of the reflex function of respiration, and their power, within physiological limits, is in proportion to the difference of those temperatures.

We must remember that the newly-born infant is a creature of high irritability and low stimulus, and that the foramen ovale and ductus arteriosus are open—both events greatly calculated to protract life and hope in the case of apnoea; and we must long, very long, *persevere* in our efforts to save the still-born.

The stillborn infant has been restored after it has been neglected for hours!

There is a remaining consideration. The effect of apnoea is a condition of the blood surcharged with, and poisoned by, carbonic acid; from this condition of the blood a secondary asphyxia and convulsions are apt to occur in the adult. I do not know whether this be the case with the newly-born infant; I trust our worthy President will enlighten us on this and other points in regard to the subject of this paper.

The *remedy* and preventive of such secondary asphyxia would be, free exposure to the breeze, with the inhalation of very dilute pure ammonia.

The treatment of the stillborn infant may finally be thus briefly resumed in the form of RULES:—

1st. Place the foetus on the face.

2d. Sprinkle the general surface briskly with *cold* water.

3d. Make gentle pressure on the back; remove it, and turn the infant on the side; and again place it prone with pressure.

4th. Rub the limbs, with gentle pressure, *upwards*.

5th. Repeat the sprinkling, only now, with cold and hot water (of the temperatures of 60° and 100° Fahr.) alternately.

6th. Continue these measures, or renew them, from time to time, even for hours. The embers of life may not be entirely extinct!

'*Lateat scintillula forsan.*'"

49. *Statistics of Operative Midwifery.* By Dr. RICKER.—This interesting contribution is derived from midwifery practice in the Grand Duchy of Nassau. This contains 429,341 inhabitants, and there are 100 civil practitioners, besides 20 others who practise while holding military or other appointments. These practitioners are required to make half-yearly returns, stating the characters of prevalent disease, the most remarkable of the surgical cases, and all the midwifery cases. The author has had access to the midwifery returns, and furnishes here an account of the results of his examination, as far as operative midwifery is concerned. Between 1821 and 1842, inclusive—*i. e.* 22 years—304,150 births were recorded.

1. *Forceps.*—These were employed in 4,223 cases, or about 1 in 72 cases. As, however, the earlier returns were somewhat incomplete, Dr. Ricker believes that 1 in 70 would be nearer the mark. The results were that 93 of the mothers died either during or soon after the operation, and that 684 children were born dead; being 1 death in 45 of the mothers, and 1 in 6 of the children. The indications for the employment of the forceps are noted in 708 of the cases only, viz:—

Disproportion of size in the head and pelvis . . . . .	287
Absence or feebleness of pains . . . . .	269
Weakness or exhaustion of patient . . . . .	33
Prolapsus of funis . . . . .	29
Spasmodic or violent pains . . . . .	22

Face presentation . . . . .	20
Convulsions . . . . .	12
Descent of parts with head . . . . .	8
Placenta prævia . . . . .	3
Faulty presentation of head . . . . .	7
Rigidity . . . . .	4
Tumefaction of pudenda . . . . .	4
Erysipelas pudendi . . . . .	7
Putrescency . . . . .	1

2. *Turning*.—There were 10 cases of cephalic version, and 2,473 of turning by the foot, or 1 in 123. The results were 176 deaths on the part of the mother, or 1 in 14; while 1,431 children were born dead, or died soon after—or nearly 1 in 2. The indication for turning is recorded in 530 cases, viz:—

Transverse presentation . . . . .	388
Placenta prævia . . . . .	82
Prolapse of funis . . . . .	28
Narrow pelvis . . . . .	18
Hemorrhage . . . . .	5
Other dangerous affections . . . . .	4
Face presentation . . . . .	2
Faulty presentation of head . . . . .	2
Convulsions . . . . .	1

3. *Perforation* was resorted to in 143 instances, or 1 in 2,126. There were recorded 88 recoveries and 35 deaths, while in 20 cases no results are given.

4. *Dismemberment* was effected in 22 cases, 16 mothers recovering, and 6 dying.

5. *Cæsarian Section*.—Between 1821 and 1843, with 311,409 births, this operation was performed 12 times, 2 mothers and 7 children being saved. This gives about one Cæsarian operation in 26,000 births. The operation was performed 33 times after the death of the mother, but none of the children were saved.

The author compares these results with the statistical accounts of the authors; but these being well known, we have not quoted them.—*Medical Times and Gazette*, Oct. 11, 1856, from *Monatsschrift für Geburtskunde*, Band vi. pp. 81—101.

## MEDICAL JURISPRUDENCE AND TOXICOLOGY.

50. *Antimonial Poisoning*.—A long-continued and careful series of experiments have been made by Dr. B. W. RICHARDSON on this subject. The experiments have now extended over several months, and have formed the subject of two communications to the Medical Society of London. The following are the conclusions arrived at:—

1. That antimony, both as regards the symptoms it induces and the pathological results arising from its administration, excites effects in the dog identical with those which it excites in man; and that experiments on dogs thus afford a fair basis of comparative research. 2. That the skin, peritoneum, cellular tissue, lungs, all absorb antimony in its soluble form with as much certainty as the stomach; and that, whether introduced by any of these channels, or by direct transfusion into the blood through the veins, the diffusion of the poison is equally complete, and its effects specifically the same. (Absolute.) 3. That, after any such mode of introduction, antimony may be detected in the vomited and purged matters, in the stomach and in the contents of the stomach, in the intestines and their contents, and in the lungs, liver, kidneys, blood, urine, heart, and even in serum effused into cavities, if such be present. (Absolute.) 4. That, consequently, the detection of antimony in vomited or purged

matters, in the stomach or the contents of the stomach, or in the intestines or in their contents, can no longer be considered as any judicial scientific proof that the poison was introduced into the system by the alimentary canal at any part, as has been assumed. (Absolute.) 5. That antimony, being absorbed with great rapidity wherever introduced, the point of surface at which it is taken into the system may afford slighter indication of the presence of the poison than any other parts of the organism: *ergo*, that the point of introduction can never be proved by mere chemical analysis. (Absolute.) 6. That antimony applied locally, so as to admit of being rapidly absorbed, seems to excite but little amount of local injury, although it exerts marked local effects when brought by the blood to any surface for elimination: *ergo*, that the appearance of intense redness or inflammation in the stomach or other part of the alimentary canal, in supposed cases of death from antimony, is no scientific proof, nor yet indirect evidence, that the poison was received into the system by this canal. (Absolute.) 7. That the symptoms of poisoning by antimony by large doses are, as a general rule, those of vomiting, purging, and rapid collapse; and that the same symptoms, somewhat modified in their course, result from small doses repeated frequently during a prolonged period. 8. That to this rule exceptions occur: to wit, that antimony, when thrown into the system in a large dose, and in such a way as to prevent its digestion, as by direct injection into the veins, may destroy the muscular power so suddenly that the symptoms of vomiting and purging may not present themselves. And, again, that when introduced very slowly, as by application to a small wound, it may also destroy by producing simple exhaustion, without the specific symptoms of purgation or vomiting. 9. That, in all forms of antimonial poisoning, death occurs mainly from failure of the circulation; the respirations being continued after the cessation of the heart's beat. 10. That the pathological appearances incident to antimonial poisoning are—(a) general congestion; (b) marked fluidity of the blood; (c) intense vascularity of the stomach in the course of the greater curvature, and, in some cases, of the rectum and other parts of the canal, but without ulceration; (d) a peculiarly pale yellow or occasional dark glairy secretion on the alimentary surface. Lastly, contrary to the statements of Magendie, antimony seems to excite no other pulmonary lesion than simple congestion. 11. That the election of antimony by different parts of the body is as yet an open question; that the liver, however, would appear to be the structure in which it is most collected when the administration is slow and in small doses; and that the elimination of the poison is attempted by all the secreting surfaces. 12. That, in rapid poisoning, the fatal effect seems due to direct chemical changes in the blood, and to indirect effect therefrom on the heart; while, in slow poisoning, there is superadded an interference with the assimilative powers, the result of the lesions excited in the stomach and other parts of the alimentary canal.

We have further to remark that, in animals dosed for a few days with antimony, and then kept for periods of seven, fourteen, and twenty-one days, antimony was found in each case in abundant proportions in the liver, and in smaller proportions in the kidney and heart; and also in the contents of the stomach in cases where the animals were destroyed during digestion of food.

The "tolerance" of antimony seems to us to depend entirely on the free elimination of the poison by the kidney.—*B. and F. Med. Chirurg. Rev.*, Oct., 1856.

51. *On the Action of Urari and of Strychnia on the Animal Economy.* By Prof. ALBERT KÖLLIKER, of Würzburg. (Communicated to the Royal Society.)—The communication which I now offer to the Royal Society, contains a brief statement of the results of a series of experiments which I lately made on the action of the urari poison and of strychnia on the animal economy.

I. *Urari*.—The urari is the well-known poison from Guiana, also called Curare and Woorara. That which I employed in my experiments I owe to the liberality of my friend, Professor Christison, of Edinburgh. The following are the conclusions at which I arrived respecting its operation:—

1. The urari causes death very rapidly when injected into the blood or inserted into a wound; when introduced by way of the mucous membrane of the

intestinal canal, its effects are slow and require a large dose for their production, especially in mammalia. When applied to the skin of frogs it is altogether inoperative.

2. Frogs poisoned with very small doses of urari may gradually recover, even after it has produced complete paralysis of the nerves. Mammalia may also be restored, even after large doses, provided respiration is maintained artificially.

3. The urari, acting through the blood, destroys the excitability of the motor nerves. In frogs under its operation the terminal branches of these nerves within the muscles lose their excitability in a few minutes, whilst their trunks become affected an hour or two later. If, after the nervous extremities have become paralyzed, the heart of the animal be excised so as to prevent the nerves from receiving any further share of the poison, the nervous trunks may retain their excitability for three or four hours.

4. The brain is less affected by the urari than the nerves in the muscles; still when, by ligature of the two aortic arches, in frogs, the poisoning is confined to the anterior half of the body, the voluntary movements of the limbs speedily cease, while automatic movements, of doubtful nature and probably proceeding from the medulla oblongata, may be still observed for half an hour or an hour after the poison has begun to operate.

5. The spinal cord is considerably less affected than the brain by this poison, and by local limitation of the poisoning (as in No. 4) it is found that the cord retains its reflex activity from half an hour to an hour and a half, and the excitability of its white substance or its conducting power from two to three hours after the poison has taken effect. It is worthy of remark that in such cases the impaired reflex activity of the spinal cord may be revived by strychnia directly applied to it.

6. The sensory nerves, as shown also by locally limited poisoning, retain their functional activity as long at any rate as reflex actions can be excited, and when the depressed reflex activity has been revived by means of strychnia, these nerves are found not to have been in the slightest degree injured, so that it seems doubtful whether the urari in any way affects them.

7. The nerves of the involuntary muscles and of the glands are also paralyzed by the action of urari, at least I find this to be true in the following cases, viz:—

- a. The pneumogastric, as regards its influence on the heart.
- b. The sympathetic (its cervical portion), in its relation to the iris.
- c. The nerves of the posterior lymph-hearts of the frog.
- d. The nerves of the vessels in the web of the frog's foot.
- e. The splanchnic nerves of the rabbit, as affecting the peristaltic motions.
- f. The nerves governing the secretion of the submaxillary gland in dogs.

8. The voluntary muscles remain perfectly excitable, but show a greater tendency than usual to merely local contractions. In general the cadaveric rigidity of these muscles appears to set in later than usual.

9. The plain or non-striated muscles also remain long irritable after poisoning by urari.

10. The heart, in amphibia, is little affected by urari. Its pulsation as well as the circulation of the blood goes on regularly for many hours after the poisoning is established. The only thing worthy of note is that the beat of the heart appears to be somewhat quickened, probably from paralysis of the pneumogastric nerves. In frogs poisoned with urari, the heart, when cut in two, shows the usual phenomenon, namely, that the half which contains the ganglia continues to pulsate while the other does not; from which, it may be inferred, that these ganglia are not paralyzed. As to the nerves in the substance of the heart, those at least which are derived from the pneumogastric, are unquestionably paralyzed (vide No. 7).

11. The lymph-hearts of frogs poisoned with urari soon cease to move.

12. The blood of animals poisoned by urari is fluid and dark, but coagulates when drawn from the vessels, and forms a weak clot which is but little reddened by exposure to air. Directly mixed with blood, urari does not prevent

coagulation, but the blood in this case also remains dark, and scarcely reddens on exposure.

13. The blood of animals poisoned by urari has the same poisonous qualities as that substance itself, but not in a degree sufficient to produce the full effects of the poison. Urari when directly mixed with blood loses none of its efficacy.

14. Urari, in concentrated solution, applied locally to nerves extinguishes their excitability, but only after a considerable time, and it appears to act similarly on the nerves in the substance of the muscles. Dilute solutions have no injurious operation. Applied directly to the brain and spinal cord, urari is altogether harmless provided its absorption be prevented.

15. When artificial respiration is kept up in quadrupeds poisoned with urari, I find that, as observed by Bernard, many of the secretions become increased—as the tears, saliva, urine, and mucus of the air-passages, which effect appears to be owing to the paralysis of the vascular nerves and consequent dilatation of the vessels caused by the poison.

16. In mammalia urari causes death by paralysis of the respiratory nerves and suppression of the respiration, which brings on convulsions in these animals as a collateral effect. In frogs the final extinction of the functions may also be partly ascribed to suppressed action of the lungs and defective oxidation of the blood, which at length renders the heart unfit to perform its office; but it must be observed that in this case the cause of death is not so plain, inasmuch as in these animals the functions are in a great degree independent of the pulmonary respiration.

II. *Strychnia*.—Some experiments with strychnia (the acetate) gave the following results:—

1. Strychnia has not the least influence on the peripheral nerves through the blood, which is best shown by cutting the nerves before administering the poison.

2. Strychnia paralyzes the motor nerves of the voluntary muscles by exciting them to too energetic action, a paralysis which may be compared to that caused by powerful electric currents acting upon the nerves. In frogs, when the tetanic spasms are over, the nerves often show no trace of excitability; in mammalia they generally retain it in a slight degree, but never show the same energy of action as when uninjured.

3. Strychnia does not affect the sensory nerves.

4. The heart is not affected by strychnia, not even during the tetanic spasms, with the exception only that its pulsations are sometimes a little slower during the tetanic state. On the contrary, the lymph-hearts of frogs contract themselves as soon as the tetanus begins, and remain in this state as long as the spasms last.

5. The tetanic fits can be brought on in two ways: first, through the sensory nerves, which, by irritating the gray substance of the spinal cord, produce the tetanic contractions as reflex movements; and, secondly, through the brain, which is not affected at all by strychnia and preserves its powers of volition and sensation. Accordingly, animals poisoned with strychnia try to move in the ordinary way, but every attempt brings on a tetanic fit, so that it is plain that the spinal cord may also be excited by the brain to its peculiar actions.

6. If the tetanus produced by strychnia has been strong, the muscles are less irritable and pass much sooner into the state of cadaveric rigidity, which is very strongly marked, and seems to last longer than it generally does. The same early onset of rigidity may be observed in animals killed by tetanus excited by electricity.—*Med. Times and Gaz.*, Sept. 13, 1856.

52. *On Oils as Promoting the Poisonous Action of Cantharides*.—The solubility of cantharidin in oils has led Orfila, Taylor, Christison, Mitscherlich, Oesterlen, and other toxicologists to promulgate cautions against the use of fatty matters in poisoning with Spanish flies. On the other hand, Clarus, in his *Handbuch der Specielle Arzneimittellehre*, considers that there are no grounds for this caution. Professor SCHOFF, of Vienna, who has performed a number of experiments on the action of Spanish flies and cantharides, has published

the results of the administration of these substances in combination with oil. Three rabbits—two of four and six months old respectively, and one full-grown—had the poison given to them. To the first was administered  $15\frac{1}{2}$  grains of powdered cantharides, rubbed up with olive oil; to the second,  $7\frac{3}{4}$  grains, prepared in the same way; and to the third was given  $1\frac{1}{2}$  grains of cantharidin, similarly prepared; to each were also administered several table-spoonfuls of olive oil. The results compared with cases in which the poison was given without oil, were the following:—

1. The symptoms during life were identified in both classes of cases.
2. Death occurred soonest in the cases in which oil was given. Fifteen grains of cantharides with oil caused death in four hours; without oil, in five hours. Seven and a half grains with oil destroyed life in nineteen hours; without oil, in twenty-six hours. One and a half grains of cantharidin, with oil, killed the animal in four hours; without oil, in from seven to ten hours.
3. The *post-mortem* appearances give evidence of less action of the poison on the parts with which it comes in contact, where oil is given, than when the poison is taken alone. In the three rabbits poisoned as above related, there was no vesication of the tongue; and the inflammation of the stomach and intestines was less than in cases of the other class. On the other hand, the signs of inflammation of the urinary system were more strongly marked where oil was given. The bladders were contracted and empty; the kidneys were much injected; and the urinary mucous membrane presented on its surface a larger quantity of epithelium, nuclei, and blood-corpuscles.—*Assoc. Med. Journal*, Sept. 20, 1856, from *Wochenblatt der Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien*, Nos. 48 and 49, 1855.

53. *Poisonous Effects of Vapour of Sulphuret of Carbon in Caoutchouc Manufactories.*—In describing the poisonous effects produced by the vapour of sulphuret of carbon on workmen in India-rubber manufactories, Dr. DELPECH gives the following case as typical:—

CASE.—Victor Delacroix, aged 27, of good general health, in 1853 commenced to work in an India-rubber manufactory. His duty was to dissolve the gum in sulphuret of carbon; and in the room where he was employed, there was constantly a large quantity of the vapour of this substance. During three months he suffered from violent headache; at the end of this time, he was seized with general *malaise* and intense vertigo, and his sight became so weak that he was obliged to leave off work in a few hours. His hearing also became affected, and in a week he was so deaf that persons were obliged to shout into his ear to make him hear; this deafness disappeared spontaneously after some time. His memory became so weak that he forgot every minute where were the tools which he had just used. His temper also became very changeable: sometimes he was excessively lively, and at others he was angered by the most trifling circumstances, and would break everything near him. He slept with difficulty—frequently not at all; and awoke suddenly under the influence of painful dreams or convulsive starts, accompanied by rigors, heat, and profuse perspirations. Even during the day, he was seized with an icy coldness for several hours, which left him in a state of great lassitude. He had severe attacks of colic, frequent indigestion, nausea, vomiting of greenish matters several times in the day, and transient diarrhœa of fetid matters alternating with constipation. There was constant loss of appetite; the mouth was pasty and expectoration frequent. He became so weak that he was obliged to sit at his work, to use a stick in walking, and to rest at each step in going up stairs. This debility, which affected both the upper and the lower limbs, was accompanied by a kind of cramp or transient convulsions in the muscles of the hands, which for a short time deprived him of the use of his fingers. The sexual appetite was altogether lost. His wife, when she was in the habit of remaining some time with him in his work-room, was also seized with headache and muscular debility. She fell into a state analogous to that of her husband, but much less severe. The young child of Delacroix, on being brought from the country and passing three days in the workshop, was seized with a kind of furious delirium, and attempted to bite its parents. In March, 1854, Delacroix entered

the Bicêtre and came under the care of M. Delpech. The symptoms described above continued. He was emaciated, very pale, and his breath smelt of sulphuret of carbon. He could walk only with a stick; he had severe pain in the limbs, which were much diminished in size, especially in the muscular parts. As occurred in cases of lead palsy, his hands were in a state of pronation, and hung down, from the greater debility of the extensor muscles; the flexors, however, were themselves weakened. Muscular contraction was feeble and tremulous. He could not close his hand with any force, and when the arm was kept extended for a few seconds, the fibres of the muscles quivered very remarkably. Sensation was perfect, as was also the contractility of the muscles under electricity. His intellect did not appear altered; he was only somewhat vague. There was a very marked intermittent *bruit de souffle*. He had frequent slight attacks of coughing; but no disease could be found in the chest, or in any of the other organs.

Electricity, sulphur baths, iron, and nux vomica, were employed during the few days that he spent in hospital. He soon was dismissed, at his own request, in an improved condition, and with the muscular weakness diminished. No conclusion, however, could be arrived at as to the efficacy of the treatment. He spent some time in the country, and put himself under a tonic regimen. He observed that the solar warmth and light removed the pains in his limbs. He became greatly improved in health, and remained so until the beginning of winter. In January, 1855, M. Delpech saw him, when, although some symptoms of his disease had reappeared in consequence of his having partially returned to his work, the following was his condition: The muscular paralysis had almost entirely disappeared: the impotence continued, and the emaciation and anæmia were still strongly marked. In consequence of the symptoms threatening to return, he was obliged to quit his employment.

GENERAL SURVEY OF THE SYMPTOMS.—Although the preceding case is typical, the symptoms of poisoning by sulphuret of carbon are manifested in different degrees. They are thus arranged by M. Delpech, as derived from the cases which have come under his notice:—

1. *Disturbance of the Intellectual Functions.*—Impairment of memory is the most common and most marked of the symptoms of this class. The workmen forget what they have to do, and make great mistakes, to the injury of the manufacture. Every moment they search for the tools which they have just laid aside; they are vague in their ideas, and cannot keep their attention fixed on any one subject. Two patients, observed by M. Delpech, could not find words to express their ideas. Some became violent and irritable, being angered at the least cause, striking all who came in their way, and breaking objects near them. Want of sleep, restlessness, fatiguing dreams, and awakening with starts, were observed in almost all M. Delpech's cases; during the day, these patients were depressed, and without energy; and, whether from want of sleep, or, more probably, from the influence of the sulphurous vapours, they felt a strong propensity to sleep.

2. *General sensation* is not very severely affected; however, there is almost always some heaviness of the head, more or less severe headache, sometimes very intense, and extreme vertigo. The pain, it has been observed by M. Bouchardat, occupies the top of the head, and is sometimes transient, lasting only two or three hours, sometimes obstinately persistent. In several cases, there have been observed pains in the limbs like chronic rheumatism, and general creeping and pricking sensations. M. Delpech has never observed well-marked anæsthesia; but M. Bouchardat has noticed slight loss of sensibility in the arms and hands. In one of M. Delpech's cases, there was complete insensibility to pain—common tactile sensibility remaining; in another, there was marked hyperæsthesia.

3. *Special Senses.*—Though no structural lesion could be discovered in the eye, the sight was, in M. Delpech's cases, greatly weakened. The pupils were mobile, but generally dilated; a thick cloud seemed spread between the patients and the objects at which they looked. Hearing was temporarily affected in several. The food of the patients, their tobacco, and all odorous objects, appeared to them impregnated with the fumes of sulphuret of carbon.

4. *Generative Functions.*—In nearly all the cases, the sexual appetite was lost. Coition was almost impossible. As the patients were young healthy men, this fact is the more remarkable: and perhaps this impairment of the sexual function is one of the most marked symptoms of poisoning by sulphuret of carbon. The same effect has been observed in females.

5. *Motion.*—One patient had frequent painful cramps of the limbs; another had involuntary contractions of the upper eyelid; and another had a kind of transient contraction of the flexor muscles of the fingers. M. Bouchardat and M. Delpech have observed a stiffness of the fingers, and of the upper limbs in general. In all the patients, muscular weakness was strongly marked, both in the lower and the upper limbs. There was in all the patients a degree of hesitation in their movements approaching to general tremor; but it appears to have reached a high degree in one case only. The muscular debility was accompanied by marked atrophy. In one case, the arms were so reduced that there was a depression in the interosseous space of the forearm; and the muscles of the thenar eminence were greatly reduced. The power of contraction under electricity remained in the muscles of all the patients who were submitted to this test.

6. *Digestive Organs.*—The symptoms have generally begun by slight disturbances of the digestive functions. Loss of appetite has been constant, and has reached so high a degree as to amount to disgust for all food, from the idea that it tasted of sulphur. The appetite reappeared in several when they had passed some hours in the air. Another symptom has been constant nausea, not always, but generally, amounting to vomiting. The vomiting returned at various times; sometimes during work, when the ejected matters were greenish and bilious; sometimes after breakfast, when the food was rejected. The vomiting was generally accompanied by extreme *malaise* and cold sweats, and left the patients much exhausted. Salivation, properly so called, was not observed; but several had their mouths frequently full of saliva. Colic was an habitual symptom, occasionally very severe: it was not regularly accompanied by either diarrhoea or constipation. The fecal matters very often smelt strongly of sulphuret of carbon: some of the patients complained much of flatulence.

7. *Respiration.*—The breath generally smells of sulphur. There is generally some breathlessness after walking: the respiration is short; but M. Delpech has only twice discovered any abnormal physical signs.

8. *Circulation.*—The heart seemed healthy in all the patients. Several felt palpitation at various periods. In the cachectic patients, *bruits de souffle* were heard in the vessels of the neck. No constant febrile phenomena have been observed. In some there have been sudden rigors, with acceleration of the pulse, especially during the night.

9. *Secretions.*—The urine in these cases has not been sufficiently examined; but in some it has been at times coloured brown by alkalies, and at other times has contained a large amount of sulphates and carbonates. Several of the patients have felt pain during micturition—due, if their observation of the odour of the urine be correct, to the presence of sulphur. M. Delpech has observed an odour of sulphuret of carbon in the urine kept for his examination. The slight irritation of the urethral mucous membrane may be also explained by the presence of salts in abundance.

10. *Cachexia.*—The patients fall into a more or less marked state of cachexia: they are pale, their skin is pasty, their mucous membranes lose colour, and anæmic murmurs can be heard. Most frequently, this cachexia is complicated by the complete or partial persistence of the symptoms of which it is the sequel. General weakness, loss of sexual power, and a sensation of vagueness in the mind, are the most usual concomitant phenomena.—*Assoc. Med. Journal*, Sept. 20, 1856, from *L'Union Médicale*, May 31, 1856.

## AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Lard as an Antidote to Strychnia.* Dr. WM. H. HAMMOND, in a letter to the editor, dated Fort Riley, Kansas, Aug. 4, 1856, writes:—

“I must tell you that I have tried Dr. Pindel’s antidote to strychnia—lard. I gave two grains of the poison to one dog, without the antidote; and two to another, with the addition of a pint and a half of melted lard. The best of the joke is, that the *latter* died in four hours, and the *former*—miserable, worthless cur, who doubtless was too mean to die—is still running about in the finest possible state of health. So much for lard. We are of the opinion here that strychnia is quite harmless, unless lard is indulged in.”

*Puerperal Fever Previous to Labour.* By M. SHEPHERD, M. D., of Payson, Ill.—On the evening of the 15th of March, last, I was summoned to see Mrs. B., of a neighbouring village, a lady 25 years of age, in her fifth pregnancy, and within twenty days of full term. She had had a chill on Thursday, three days previous to my visit, which was followed by high fever and severe pain in the left iliac region, and also in the mammary gland of the same side. As she had, previously, during lactation, suffered from what she termed “weed in the breast,” she refused to have a physician sent for, notwithstanding the urgent appeals made by her husband, who is a very intelligent man and a minister of the Gospel. The remedies used for her relief during this time, of course, were of a domestic nature, such as intelligent ladies are in the habit of using in such attacks as she supposed hers to be.

When I arrived, she stated that she had been “flowing” quite freely, for several hours, but had no other signs of labour. Her pulse was 140, and her respirations 28 to the minute. The tongue was clean, but dry; abdomen very tense. I expressed my surprise that she should have suffered so long without medical advice. The husband stated that she insisted on treating the breast in her own way, and as she had suffered from pain in the left side two or three weeks immediately previous to three consecutive confinements, which had been occasioned by the “placenta growing fast to that side of the uterus,” she would not consent to see a medical man. I informed him that his wife had puerperal fever in its gravest form, and that to me there was a peculiarity which I had not before met with—its occurrence previous to the birth of the child.

In Dr. Meigs’ valuable work, “*Woman and her Diseases*,” I find the following, which I had marked with a pencil, when I first read it, four years ago:—

“The attack of puerperal fever generally begins previous to the fourth day after delivery of the child. Not a few examples are recorded in which it began previous to the labour. I have seen such a case myself,” &c.

As there was nothing that seemed to be more clearly indicated than bleeding, in this case, it was resorted to, and seemed to afford considerable relief. I remained with her during the night, but did nothing more. In the morning labour came on, and in less than an hour she gave birth to a dead foetus.

The labour was natural and easy; the after-birth was not attached as previously. She congratulated herself that she was much better, the pain and tension of the abdomen having almost entirely subsided. I left her, after breakfast, but visited her again that night. She appeared quite comfortable and cheerful; had but little pain, but considerable tympanites. Respirations, 30; pulse, 136, and feeble; tongue dry. Her friends thought that I had been unnecessarily alarmed, and were quite elated with her appearance. I ordered fomentations to the abdomen, and five grains of blue mass every four hours until I should see her again. I was sent for early the next morning, and found pulse 170—respirations 26. She would occasionally throw up a wash-basin full of greenish fluid. The tenderness and tension of the abdomen very much increased. Applied episp.; gave 10 grs. calomel, and ordered it moved off with castor oil and spts. turpentine in six or eight hours. *Evening.* No evacuation; continued oil and turpentine, with an occasional enema. *Tuesday Morning.* No evacuation; pulseless; vomiting continues. Expired Wednesday. No *post-mortem* allowed.

*Spontaneous Rupture of the Spleen.* By THEOPHILUS MACK, M. D., of St. Catharines, Canada West.—The pathology of the spleen having occupied a portion of the pages of the *American Journal of the Medical Sciences*, lately, and as it is the impression that Rokitansky was the first to point out the occurrence of ruptured spleen spontaneously in consequence of acute tumefaction, I beg leave to submit the following case published by me in the *British American Medical and Physical Journal*, for October, 1856:—

“Thomas Flynn, ætat 48, blacksmith, of medium stature, constitution somewhat impaired. In earlier life had served as a private soldier in an infantry regiment, and had been treated at the Regimental Hospital for some disease of the chylipoietic viscera, for which local depletion and counter-irritation appear to have been prescribed, as there are marks of leech-bites and vesicants apparent over the epigastric region.

Last summer I was called upon to attend him for some abdominal affection, probably cholera morbus. During the last eight or nine months he has resided in a shanty on the margin of a stagnant pond, near the debouchement of the Welland Canal into Lake Ontario.

For some weeks past he had been labouring under intermittent fever of a tertian type, in the treatment of which he had employed a certain nostrum ycleped “cholagogue,” which, as his friends expressed it, “broke the chill,” so that he had been enabled to work at his trade for the space of three or four days, still complaining of dizziness and the effects of secondary mal-assimilation.

Upon the 22d of June he was engaged in the construction of some iron bands. After swallowing a moderate draught of cold water he was suddenly seized with severe pain, and, having been carried to bed, a messenger was dispatched for me. I found him writhing in great agony; he referred the seat of pain to the left side of his chest and abdomen. The skin was bathed in a copious sudor, features sharpened, and countenance anxious; “intellect not affected; tongue of a leaden hue, cool; bowels torpid, tenderness on pressure in left hypochondriac region: abdominal pain deep-seated; respiration hurried; no abnormal resonance; no râle; heart’s action extremely rapid, feeble, *bruit de souffle*; pulse 160, small and tense; urine suppressed. No relief followed treatment, and he died about sixteen hours from the time of his seizure.

*Morbid Appearances.*—Our examination was limited by the friends to the abdomen. The integuments of that region were distended and tympanitic. The incision through the linea alba was succeeded by the escape of a large quantity of flatus and bloody serum. Peritoneum injected, that of the intestines pink-coloured. The liver of the usual size and weight, but softened in structure, and upon being incised the parenchyma appeared abnormally dark.

Pancreas small and hard. Stomach and intestines healthy. About five pints of sero-sanguinolent fluid was effused upon the left side. A large clot of extravasated blood which issued through a rent in the spleen, extended from the diaphragmatic surface of that organ, and behind it, to the commencement of the lumbar region. The investing membrane of the spleen was easily peeled off, and contained, in addition to the substance of the spleen, which was of a light-chocolate colour, a dark-brown mass destitute of organization (altered blood), attached to a defined edge apparently effused from the splenic parenchyma within the capsule. Left kidney large and pale. Right kidney normal. Remaining contents of abdomen presented no pathological appearances."

*Remarks.*—This case appears to have been a solution of continuity from a sudden hyperæmia in an organ already having sustained a species of apoplexy (if the term be admissible), with an extravasation resulting. It is not exactly one of those supervening upon "acute and violent tumefaction proceeding to a most intense degree," or occurring in the "hot stage of ague."

If we may be allowed to venture upon a solution of the cause of this case we should suggest that, probably, during the *cold stage* of some former paroxysm of intermittent, an extravasation within the covering took place. (This might have been increased at each subsequent congestion.) The draught of cold water might have been followed by a determination of blood to the spleen, the already over-distended capsule gave way, and a fatal hemorrhage was the result.

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#### DOMESTIC SUMMARY.

*Concussion of the Nerves.*—Prof. WILLARD PARKER states (*New York Journal of Medicine*, Sept. 1856) that a number of cases have come under his observation which he cannot otherwise explain than on the supposition that the nerve receives a shock, and the function is for the time suspended, in a manner similar to injuries of the great nervous centres. He relates six cases illustrative of this accident, and gives the following conclusions in regard to its diagnosis, prognosis, and treatment:—

*"Diagnosis.*—It is of the utmost importance, for the successful issue of this affection of the nerves, that the nature of the accident be early understood. The first effect of concussion of the nerves, as of the brain, is a sudden suspension of function. The part is temporarily paralyzed; reaction soon comes on, with a gradual restoration of power. This may result in an inflammatory attack, and the early treatment should be directed to its prevention. When this period has passed, although the nerves of the part seem to have recovered their functions, they are really enfeebled, and incapable of their former exertion. If the organ which they supply is subjected to severe exercise, it becomes the seat of a dull, 'aching, or tired pain,' the sure evidence of exhaustion. The latter is one of the most constant symptoms of this affection of the nerves, and deserves especial attention. It will be observed that the injured limb is intolerant of severe exertion, and, when exercise is carried beyond a given limit, nervous exhaustion follows, and nothing but rest, often long continued, will restore its previous comfortable condition.

*"Prognosis.*—The prognosis in concussion of the nerves depends much upon the early treatment pursued. If the nature of the injury is properly recognized, and the means employed for the gradual restoration of the healthy tone of the concussed nerves be judiciously selected, entire recovery may be confidently anticipated. The history of the foregoing cases, especially numbers 2 and 3, would lead us to infer that, after apparent recovery, the nerves remain irritable, and liable, on the occurrence of an exciting cause, to a relapse. If, however, the condition of the nerves is not understood, and active, exhausting measures are resorted to, the prognosis is decidedly unfavourable. Aggravation of the

symptoms promptly occurs, partial paralysis and a gradual wasting of the limb follow, and its usefulness is permanently impaired. The weak and irritable condition of the nerves of a part extends to the nervous centres, causing a general nervous irritability, and this, in turn, aggravates the local affection. In no instance has the disease resulted fatally to life.

"*Treatment.*—The proper treatment of concussion of the great nervous centres has long been well understood; rest, until the equilibrium of the circulation is restored, and such lesion as may exist is repaired, is the most positive and essential element in the treatment. It is, in fact, the *sine qua non*. If the concussed brain, or spinal nervous centre, is prematurely exerted, a morbid process is set up, which insidiously, but surely, leads to a loss of its integrity. Of other means, which are but adjuvants to *rest* in the treatment of these cases, it is not necessary here to speak.

"The proper treatment of concussion of the nerves, immediately after the accident, I regard as one of the utmost consequences for future success. Perfect recovery depends entirely upon the plan thus early pursued. As in concussion of the brain, so in concussion of the nerves, *rest* is an element of treatment without which all other remedies will positively fail. A perusal of the foregoing cases will confirm this assertion. I am the more anxious to impress this fact upon the practitioner, because, without exception, active remedies were early employed in these cases, and the limb was forced into too active exercise, and always to its positive injury. This course has been pursued from a wrong understanding of the nature of the injury inflicted upon the nerves. It has been supposed that the function of the nerve was simply suspended, that its power was dormant, and it only required stimulation to restore its healthy action. For this purpose electricity has been used in addition to powerful local applications and exercise, but always with positive injury. Local depletion has been practised, under the impression that the pain was due to local inflammation, and the result has been no less unsatisfactory.

"On the contrary, I regard the affection as one of pure nervous debility, the nerves being enfeebled by the shock. To employ stimulants under such circumstances, would be to goad an already exhausted beast, or urge to exertion a patient prostrated by disease, in the hopes of thereby increasing strength. The condition of the nerves of the limb is similar to that of the retina in the disease known as *asthenopia*, viz., one of true exhaustion.

"By rest, in the treatment of concussion of the nerves, I do not mean an absolute state of quiet, but a certain degree of rest, alternating with such an amount of *passive exercise as never causes the return of the 'dull, tired pain,'* of which patients invariably complain when the nerves approach the state of exhaustion. Passive exercise, as riding in an easy carriage, or on the water, not carried beyond this limit, proves decidedly beneficial, and should be encouraged.

"Next to this degree of rest, or limited exercise, dry frictions of the limb have given the most relief. Friction may be made with the hand or a coarse cloth, and should be continued according to the feelings of the patient. The application of a wet towel has seemed to afford some relief, and may be resorted to; hydropathic treatment has not, however, afforded any other results than improvement of the general health.

"The condition of the general system should be carefully attended to, for on its integrity depends the tone of the nervous system. This fact is illustrated in case 3, where an attack of cholera severely aggravated the existing affection of the nerves of the leg. While all fatiguing exercise of the body, within the limits specified, should be scrupulously avoided, it is not less important that the mind be not overtasked by exertion or anxiety. In case 2, the patient, a lawyer, could never apply himself to business without an aggravation of his symptoms, attended with general prostration; and in case 3, reading and writing proved equally injurious, exciting dull pain in the limb.

"In conclusion, the following propositions may be stated:—

"The first effect of concussion of the nerves is temporary paralysis, more or less complete, of the limb; the second effect is an enfeebled condition of the

nerves, leading to deficient innervation, emaciation of the limb, and permanent paralysis.

"The proper treatment is rest, alternating with passive exercise, dry friction, and improvement of the general health."

*Partial Fracture of the Neck of the Femur in a Man Forty-four Years of Age.*  
—Dr. JACKSON exhibited to the Boston Society for Medical Improvement, Sept. 22, 1856, a specimen of this. The fracture, which appears as a mere crack in the bone, commences anteriorly just above, but very near to, the insertion of the capsular ligament, runs along this insertion for about an inch, and then extends directly upwards to the margin of the head of the bone. From this last point it crosses the upper surface of the neck almost in a straight line, and at a little distance from the margin of the head, but afterwards approaches very closely to this margin posteriorly; it then turns downwards and obliquely forwards, and stops at a point about half way between the small trochanter and the head of the femur, and two-thirds of an inch or more anteriorly to the line of this trochanter. The fracture then involves about three-fourths of the neck of the bone; the inner-anterior portion only being spared. There is considerable motion between the neck and the shaft, and the fracture could undoubtedly be completed without the application of any extraordinary force. Dr. J. referred to other cases of partial fracture; but a fracture of this sort, as occurring in this situation and in a fully adult subject, he believed had never before been described. There was also, in this case, a transverse fracture of the same femur midway, with a split extending upwards nearly to the neck of the bone; and still further, a fracture of the spine. The patient, a labouring man, fell through two stories of a building and down upon a hard floor. On the same day he entered the Mass. General Hospital, and on the 18th day from the time of the accident, he died. The femur is perfectly healthy in structure, and no changes are observable in the bone about the fracture.

Dr. Mussey, of Cincinnati, remarked that this specimen was one of great interest, and alluded to the case of a hospital patient that fell under his care, in which he suspected the same accident. The patient had fallen; there was lameness of the hip; *no shortening, no eversion*. On the following day, still no shortening could be discovered. During that night he walked about the ward. On the next day, the limb was found to have shortened to the extent of one-fourth of an inch. There was evident fracture of the neck of the thigh bone, and an extending splint was applied, and kept on for three months. The patient left the hospital with the limb shortened to the extent of three-quarters of an inch. Dr. M. questioned whether this were not a partial fracture, in the first instance, afterwards rendered complete by walking.—*Boston Medical and Surgical Journal*, Nov. 27, 1856.

*Constitutional Effects of Anæsthetic Agents.*—The *New York Journal of Medicine* (Sept. 1856) contains an interesting paper on this subject, by Dr. J. HENRY CLARK, of Newark, N. J., in which he relates the three following cases occurring in his practice, where he considers that the anæsthetic, without producing any untoward effects at the time of administration, gave rise subsequently to a train of symptoms of a very distressing character:—

"Case 1.—Mr. J. M., a gentleman about 30 years of age, of good constitution, who ordinarily enjoyed good health, took *ether*, to facilitate the extraction of a tooth. He is of a nervous temperament, light complexion, blue eyes, and light hair. The administration of the agent produced no unusual effect, except that a 'choking feeling' was experienced just before the occurrence of complete insensibility. After recovery from the immediate effect, for several weeks extreme nausea and constant pain in the head were experienced.

"After the lapse of three or four months, Mr. M. applied to me for advice, complaining of the following train of symptoms, the commencement of which he dated from the day that he inhaled the ether. He is an intelligent man, and has no doubt that they are wholly attributable to the inhalation, and that they commenced at that time. These symptoms, he says, he never before experienced. Is very 'bilious' (to use his own language); tongue much coated; constant pain

in the head, especially over the eyes; a 'feeling as if there was a *want of mental exercise*;' habitual costiveness; pain in the right side and back; indigestion; want of muscular strength; nervous system greatly deranged; neuralgic pains; and great despondency of mind.

"Change of habits, mineral tonics, and alteratives restored him to perfect health after a few months. All these symptoms at length disappeared.

"*Case 2.*—Mr. C. M. inhaled *chloroform*, for the purpose of having a tooth extracted, in November, 1854. In the afternoon of January 5, 1855, I was called hastily; found him in a state of dreadful nervous excitement. He had just recovered from a period of insensibility; his extremities were cool; pupils of the eyes natural; some heat about the head and neck; convulsive twitchings in the face; and trembling, with nervous agitation and mental excitation.

"When the urgent symptoms were relieved, I learned that he recovered from the immediate effects of the inhalation without any unusual symptom; that it was followed by a very unpleasant feeling in the top of the head, such as he had never experienced before; that this symptom and neuralgic pains had been constantly experienced from the day that he took the chloroform.

"In the morning of January 6, while lying reading on the sofa, he was seized with a singular sensation of bewilderment and other feelings that he finds no language to describe. These sensations greatly alarmed him. Recovering himself, he went to his father's warehouse; while there engaged, an hour or two afterwards, he again experienced those singular sensations, but found himself unable to *articulate distinctly*. His father perceiving that he was ill, observing convulsive twitching in his face, with pallor and anxiety, and perceiving in his conduct a desire to go home, took his arm and walked with him to his residence, about half a mile distant. I was soon after summoned, and found him in the condition heretofore described.

"I prescribed stimulants, antispasmodics, and alteratives. He did not leave his room for a week, during which he suffered from extreme restlessness, anxiety, and vertigo. His pulse continued, during the week, depressed. I treated him with tonics and antispasmodics, and mild mercurial alteratives, with evident advantage; but his neuralgic symptoms yielded slowly. His liver was constantly torpid; lassitude, indecision, and depression of spirits were indicated in his conduct.

"I advised a *voyage to Europe*. He sailed in May, and remained till September. He returned very much benefited, but had the same furred tongue that was evident in the case previously referred to, with more or less habitual costiveness. These symptoms have yielded to the use of mild alteratives, and he seems now, after the lapse of fifteen months since its inhalation, to have recovered again his wonted strength and vigour.

"In the case last alluded to, it required about eighteen months to rally from the influence of the ethereal inhalation. In the case to which I shall next refer, over two years was required to outlive the same train of symptoms, mostly neuralgic, which commenced from the day of the inhalation.

"*Case 3.*—Mrs. W., about 25 years of age, dark complexion, dark eyes, dark hair, of sanguine temperament, none of the nervous. She had usually enjoyed good health, although not robust. She received *chloroform* at the hands of a dentist also. I was called a year afterwards to prescribe for a set of symptoms very much like those described in the cases before narrated; neuralgia and 'strange feelings about the head' were the prominent symptoms described, with a general feeling of 'malaise.' I found, as in the other cases, a determined conviction that all these symptoms were new, and that they commenced with the inhalation. I treated her as I did the others, depending mainly upon *iron*; the appearance of the countenance indicated the want of a larger supply of iron in the blood. She gradually regained her usual health. It required a full year, however, to accomplish the cure. The writer believes that the experience of others, if it could be accumulated, would prove that—

"1. Chloroform is most dangerous when employed in cases of trifling importance, both in relation to its immediate effects and final results. This is proved by the greater frequency of cases in which unpleasant results are observed,

which follow the extraction of teeth, or its use in trifling operations, where there is not pain enough to resist its excessive effects.

"2. That persons whose nervous systems are particularly susceptible are most liable to suffer from the inhalation of these agents.

"3. That the use of chloroform in the lying-in chamber is not devoid of danger.

"A very limited inquiry into the experience of others has been made, with the following results. An eminent practitioner, in answer to my inquiry, says: 'I have given it in four cases of accouchement. One of my patients had puerperal mania, and another congestion of the brain, both within six days afterwards. It is possible that chloroform was not the cause in either case; but I have never ventured to use it since.' A lady of eminence in New Jersey took chloroform in labour, became comatose, immediately recovered, with *permanently impaired* intellect.

"In the experience of a neighbouring practitioner, a perfectly healthy girl, aged 18, sanguine temperament—catamenia regular—applied to a dentist to have a tooth extracted under the influence of chloroform. It was done very carefully by a prudent man. A very few inspirations sufficed to produce insensibility. The tooth was extracted, but sensibility did not return for several days; a serious congestion of the brain followed, continuing for several weeks, and, though several years have elapsed, she continues in a partially demented condition, subject to periods of excitement somewhat like those which she exhibited during the original attack.

"A physician of New York city relates a case of a young woman, aged 28, in good health, who, after the extraction of a tooth, was immediately seized with the most distressing symptoms. Every muscle in the body commenced jerking and twitching. These phenomena continued for four days, despite the means adopted for her relief. They ceased at length under the use of strychnia. I am not informed with regard to the influence upon the mind.

"The same gentleman related the case of a young girl, in a good family (without date, age, name, or any facts, lest the matter might become public and grieve the friends), who became crazed immediately after taking chloroform to facilitate the extraction of a tooth. *Years have passed, and she is still a maniac.*

"Another case has come to my knowledge of a child fourteen years old, who took chloroform when about to undergo a trifling operation. She became deranged. *Six years have passed, and she has in nowise recovered.*

"Morris County, N. J., furnishes a case, that I am not at liberty to report, in which permanent idiocy resulted from the inhalation of chloroform.

"That these agents should be used with great caution is further proved from their influence upon certain susceptible constitutions, when not taken for the purpose of producing insensibility, but when merely exposed to an atmosphere charged with the fumes of ether or chloroform. On this point I have several illustrations, but one will suffice.

"Mr. —, a highly respectable dentist of —, of nervous habit, light complexion, active motion, suffered from all the symptoms which were observable in the cases which I reported in my own experience in the early part of this article, simply from breathing the fumes of these anæsthetic agents as they permeated the apartments in which he operated and resided. He was accustomed to use these agents in his practice almost hourly. His house was perpetually filled with the odour. He became at length feeble, pulseless, anemic — 'felt as if he had been drinking champagne'—suffered from neuralgia and very great nervous debility. Abandonment of business, a residence in the country for three years, and constant out-door exercise, and the use of electricity, accomplished a cure at the *end of that period*. He has no doubt but his illness resulted from this cause, and that his recovery is due to its removal, and the remedies employed.

"My honoured and beloved preceptor, the late James C. Bliss, M. D., related a case to me last spring, in which amaurosis, followed by idiocy, resulted from the use of chloroform or ether in parturition. They succeeded the inhalation so promptly, that it is evidently proper thus to trace cause and effect. I understood that all who saw her, both in and out of the profession, attributed the

amaurosis and the subsequent derangement to the inhalation of one of these agents—I did not understand which.

"Several other cases have come to my notice, in which the inhalation of anæsthetics seemed to produce similar constitutional effects. They were not my own patients, and I could not get access to well-authenticated facts in relation to them.

"These facts have made upon my own mind the impression that these agents should be regarded as remedies of great potency, and not always certain to produce none but salutary effects; that they should not, if possible, be administered to persons subject to local determination, or where their antecedents offer reason to apprehend derangement; that their use should be avoided in persons of extremely nervous temperament, or for any cause of nervous susceptibility.

"We have the authority of eminent men, in Europe and in this country, whose experience in the use of these agents has been very extensive, in favour of their usefulness and safety. Still, these gentlemen have committed themselves in favour of what may be regarded as their hobby, without being chargeable with any want of respect, and the experience of others does not justify fully their opinions with regard to their entire safety.

"If cases of dying do *sometimes* occur in the lying-in chamber and on the operating-table—if debility, hepatic congestion, neuralgia, apoplexy, and mania do *sometimes* follow their use—it would appear proper that he who would deserve a reputation for wisdom and discretion should be quite certain that the severity of the case demands a *somewhat hazardous* remedy. Chloroform furnishes most valuable assistance in the operations of surgery and the lying-in chamber. With no disposition to undervalue it, and far less to treat lightly the valuable statistical evidence furnished by Professor Channing, of Boston, and Professor Simpson, of Edinburgh, of its comparative safety when carefully employed, I cannot believe that its employment to relieve the pangs of *ordinary confinement*, or to allay the pain of a trifling operation, is wise or expedient. If in my comparatively limited experience three cases should come under my observation within about two years, others, situated more advantageously, could note many such cases, if looked for. To record the result of my observations, and to prompt abler observers to look in the same direction, is the whole of my present purpose.

"While writing the concluding pages of this article, I have been called to administer chloric ether in a case of amputation of the adventitious toe of each foot from a young gentleman of vigorous health. Although the operation was not very protracted, and the ether was administered by a discreet medical assistant, derangement followed; nor were my anxieties entirely relieved with regard to these effects before the lapse of six or eight hours.

"If the facts which I have collated are sustained by those of larger experience—if there are constitutional effects as well as immediate to be guarded against, more regard should be given to the habits of the patient, and these agents should surely be reserved for grave and trying emergencies."

*Remote Effects of Anæsthesia on the System.*—Dr. FREDERICK D. LENTE records (*New York Journ. Med.*, Nov. 1856) the three following cases, in which anæsthetics appear to have been productive of serious ill consequences, and which have occurred in his practice within the last five years:—

"CASE I. In the summer of 1853, assisted by Dr. Leroy, formerly Resident Surgeon of the New York Hospital, I operated on a boy in apparent good health, eight years old, for contraction of the index and middle fingers of the right hand, the result of the cicatrization of a bone some years previously. As the case required a careful and somewhat protracted dissection of flaps into the palm of the hand, the patient was subjected to the influence of sulphuric ether, administered by Dr. Leroy, on a sponge in the usual way. Nothing remarkable occurred either during the administration of the anæsthetic or during the operation, and but a moderate quantity of blood was lost. The patient soon recovered consciousness, but in a short time he became very feeble, and soon commenced vomiting, although no food had been allowed for seven hours previous to the operation. The pulse commenced sinking rapidly, conscious-

ness being unimpaired. Frictions were at once resorted to, and stimulants attempted, but were immediately rejected by the stomach. The prostration soon became extreme, and dissolution appeared imminent both to Dr. Leroy and myself. Brandy was freely administered by enema, and retained, and, in the course of an hour or two, reaction slowly commenced, but it was not until several hours had elapsed that it was considered safe to dress the wounds, so slowly did the patient recover from the prostration.

"CASE II. This patient, a young man in ordinary health, not robust, æt. about 25, of nervous temperament, wished to have a large number of decayed teeth and fangs of teeth removed. At the request of the dentist who was to operate, I administered sulphuric ether, patient sitting upright in the operating chair, a necessary position during such an operation. The patient had previously been considerably frightened both at the idea of the operation, and of the anæsthetic, although unwilling to undergo the suffering without it; he had accordingly primed himself pretty thoroughly with brandy, but was in nowise intoxicated. Nothing unusual occurred during the administration of the ether, and anæsthesia was induced without difficulty. Six stumps were rapidly and skilfully extracted, say within three minutes, perhaps within two. The patient then showed some signs of returning consciousness, and more ether was administered; anæsthesia was soon re-established, and six more teeth were, with equal rapidity, extracted. The anæsthesia was very complete, but there was no unusual difficulty in recovering the patient, and he was soon able to walk home. A week or two after this, he applied to me, complaining of debility, pain about the head, and dizziness, a disposition to faint and fall down, and various nervous symptoms, which, he said, had troubled him ever since the operation. He was very low spirited and fearful of some serious disease. He, of course, attributed all this to the ether. I endeavoured to divert his mind from this idea, and prescribed change of air and tonics. He went away, but returned within a few weeks not much better. Subsequently he improved, and after a couple of months longer was much better, though still rather nervous and desponding. He afterwards went to the city to reside, and since that time I have not seen him.

"CASE III. W. M., a young gentleman, about 30 years old, in robust health, of temperate habits, was attacked with ulceration of the soft parts of the mouth from pressure of a crowded wisdom tooth; the pain was very severe, causing loss of rest and food. I advised the extraction of the tooth, but the dentist to whom he applied merely cut away the overhanging edges of the ulcer; the inflammation increased and extended to such a degree as to produce almost complete closure of the jaws, with inability to open them. It was absolutely necessary now that the tooth should be extracted as the only means of arresting the inflammation, and it was therefore proposed to etherize the patient in order to allow the jaws to be forced open sufficiently to admit the introduction of a forceps. Sulphuric ether was accordingly administered; the patient came rapidly under its influence, scarcely requiring an ounce and a half, though not entirely unconscious; the jaw was forced open with but little difficulty, and the tooth rapidly extracted by the dentist in attendance. The patient soon recovered, but seemed a little nervous and considerably excited, but expressed himself as entirely relieved from the severe pain he had been suffering. He was advised to go home and lie down for a few hours. He walked home, about a quarter of a mile or more, and followed my advice; but in the afternoon complained that the ether was still in his lungs, and sought to get rid of it by riding and walking. In the evening he was at the house of a friend in gay society, and seemed to enjoy himself, still, however, occasionally complaining of some difficulty about his chest, when, all at once, he fell from his chair, exhibited great restlessness, tossing about of the arms and legs, with great difficulty of breathing, but no loss of consciousness, declaring all the time that he could not get his breath for the ether, and that he should die; his hands and feet were said to be cold. Before I reached him, various restoratives had been applied, and he had been almost drowned by the assiduous application of hot water. It was evident at once that it was a case of violent hysterics, unusually well marked in a male. Patient at times would laugh and joke, then express

fears of impending suffocation, with jactitation, declaring that as vapour of ether was heavier than air, he ought to be held up and allow it to run out of his lungs. As he was rather weighty to allow of convenient inversion, his request was not granted. Large doses of morphine were administered, but had no effect; it was only after several hours that he could be quieted. The next day he was able to be up, but complained of weakness and a disposition to faint on the slightest attempt to walk, also of some difficulty of breathing. This continued for some days, but finally disappeared, and, within ten days, he was apparently in his usual condition. Patient had never previously exhibited any tendency to hysteria."

*Placenta Prævia with Twins.*—Dr. H. R. STORER communicated the following example of this to the Suffolk District Medical Society, Sept. 27, 1856.

"Two days since (Sept. 25) I was suddenly summoned by Dr. Hobbs to a patient of his own, who was then lying dead. I found the woman, Irish, perhaps 30 years of age, and previously the mother of a single child. She had thought herself about eight months gone, and at intervals, during several weeks, had passed blood from the vagina, with the ordinary symptoms of placenta prævia, which Dr. Hobbs had very properly diagnosed. Labour pains had commenced the night before, and with alarming hemorrhage. Dr. Hobbs was then called, found the patient's strength good, her pains absent, the os but partially dilated, and had plugged the vagina, expecting to be notified of any change for the worse. Hearing nothing from the patient, he answered another obstetric call that night, and visiting his first patient next morning, found her four hours dead from sudden and profuse flooding. Much trouble being made by the friends, who charged him with culpable neglect, I was called in his defence and to deliver the woman.

"The children having been long dead, I preferred doing so by abdominal section rather than *per vaginam*, that I might better study the case. By preliminary vaginal examination, I found the placenta freely bulging through a well-dilated os, but still completely attached throughout its circumference. The abdomen was then opened, and it became at once evident, before incising the uterus, that there were twins. These were both removed from the uterus, with the double placenta, without rupturing the membranes. The larger, a boy of perhaps six pounds, occupied the left side, its head presenting; the other, a girl, presented by the feet. The membranes were completely separate, save within an inch of the placenta, which were fused into one. Each sac filled with liquor amnii, and each funis with the battledoor attachment and to the left—so that that of the right sac was implanted almost at the very line of fusion of the two placenta. These last were situated directly over the os, and were still extensively attached. I was not permitted to remove the uterus, and cannot, therefore, so decidedly speak of the nature of the attachment of the placenta with the uterus as I could wish. My impression, however, is with Madge, as laid down by him in the last number of Braithwaite, that there is no *direct* vascular communication between the mother and fetus, but that there is a membranous septum between the placenta and uterine wall. Fragments of such are very evident on inspection of almost any placenta. My belief now is that it exists *entire*. The placenta, in this case, were readily separated from the uterus, and their early and direct removal might have checked the hemorrhage.

"Strangely enough, no case of *placenta prævia with twins* seems ever to have occurred in the practice of any noted accoucheur, or at any lying-in hospital. With only two exceptions,<sup>1</sup> and these from other men's practice and but incidentally mentioned, none are recorded in any work on obstetrics; the possibility even of such a coincidence I can find nowhere referred to.

"There seems, however, *à priori*, no good reason why this coincidence should not occur, and as often, proportionally to the relative frequency of twins, as its occurrence with single children.

"On investigating the matter, I am able by statistics to prove that this is

<sup>1</sup> Levret, Accouch. Lab.; J. Ramsbotham, Pract. Obs.

the case, and that the actual ratio of this coincidence is strikingly identical with what might have been expected."—*Boston Medical and Surgical Journal*, Nov. 27, 1856.

*Congenital Multilocular Cyst.*—Prof. F. H. HAMILTON exhibited to the Buffalo Medical Association (October 7, 1856) a specimen of this. The little girl from whom it was obtained was 11 years old. "At birth a small hard tumour was noticed on the left cheek near the angle of the jaw, a portion of which was firm, and a portion elastic, as if containing fluid. Dr. Van Aernam, of Chatauque Co., had for some time supposed it to be connected with the parotid gland.

In May of this year, the child was brought to me. The tumour was then so large as to cover nearly the whole of the left cheek. It was elastic. With an exploring needle, I ascertained that it contained a bloody serum, and that it was multilocular.

A violent inflammation and great swelling followed this small wound, which only subsided after a fortnight, and a bloody serum continued to discharge many days.

On the 24th of June, I gave her chloroform and proceeded to extirpate the tumour, assisted by Boardman, and Messrs. Mason, Flint, &c. I soon ascertained that the mass was composed of the parotid gland; the portio dura and the external carotid artery passing through it. The first was cut, and also the trunk of the temporal artery. I removed, with great labour, all of the tumour lying upon the cheek, and descended as far as was practicable into the space behind the jaw.

The tumour itself consisted of an innumerable aggregation of cysts or of spaces, varying in size from a pin's head to the size of a pullet's egg; the largest cysts being those which were nearest the surface, those which lay most profound being scarcely discernible as cysts, and finally the cysts seemed to be entirely lost in the natural tissue of the gland.

The walls of these cysts were in the main thin and smooth, but inlaid with duplications or columns resembling very much the columnæ carneæ and chordæ tendineæ of the heart.

The contents were uniformly the same, serum coloured with blood, and as the walls were diaphanous, the smaller cysts looked like dilated veins.

On every side the cysts were firmly adherent to the adjacent tissues, and the vascularity of these tissues was very remarkable. We tied a large number of arteries.

I did not close the wound until all bleeding had ceased, and the dressings then applied were very light and simple.

Within a few hours after the operation was completed, a swelling commenced around the margins of the cavity, which soon became very tense and painful. A bloody serum also continued to ooze for several days.

This interesting little patient, whose courage was always equal to her suffering, remained under my charge several weeks and then returned home. I have since learned, indirectly, that her recovery was complete, but with how much disfigurement of the face I am unable to say.

This is the second time I have met with a tumour of this character. I mean a multilocular cystic tumour.

In the first instance referred to, the child, a fine healthy boy, was one year old, of light complexion and sandy hair. At birth a small purplish spot, like an erectile nævus, in which the venous character predominated, was seen on the left shoulder blade. At the time of my operation, February 23, 1855, it was of the size of a cocoa-nut, elastic, smooth, and without tenderness.

I opened it freely with a simple incision, but did not attempt to dissect it out. A number of cysts came consecutively into sight and were opened. The cysts contained a thin, yellow serum. There was not at this time any hemorrhage of consequence.

Twenty-four hours after the operation I found the sac filled with blood. I first removed the clot and seared the wound with a hot iron, but as the bleeding did not cease, I opened the sac and tied numerous small vessels in the partitions of the various cysts.

In twenty-four hours it was again full of blood, and at the end of forty-eight hours I emptied it thoroughly, and opened nine more cysts which I had not seen before, but which were now very large. I again seared all the sacs with a hot iron, and still further sought to control the bleeding with perchlor. ferri. The bleeding did not return, but the child died, partly from the shock, and partly from the loss of blood, on the fourth day after the operation.

I have seen one other case of encysted tumour, whose walls were exceedingly vascular, and from which a troublesome hemorrhage has followed. This was the case of a young miss ten years old, with a simple encysted tumour of three years' growth, situated on the back, over the lower angle of the scapula. The hemorrhage in this example continued four days, and was finally arrested, with great difficulty, by the actual cautery. I have seen, also, other cystic tumours containing a sero-sanguineous fluid, one of which at least was congenital.

It is to the multilocular cystic tumours, however, that I wish especially to call your attention, and of which this specimen is an example, since they are fortunately very rare, and, I have reason to believe, their character is not so simple as they at first seem to be. There is, in fact, a strong probability that they are all more or less erectile.

The example before you corresponds to the usual history of erectile tumours in the following circumstances: It was congenital. It was painless in its growth. Its walls and partitions were exceedingly vascular, and this vascularity extended much beyond its outer walls, and after excision, the neighbouring tissues continued not only to bleed but became rapidly and intensely swollen, as if from vascular erythema and congestion.

In its minute anatomy, also, it bears a striking analogy to erectile tumours not only, but to erectile and cavernous tissue in its normal state; the smaller spaces, or the cells in those portions where the disease had not so fully developed itself, resembling the cells of many purely erectile tumours, and especially the cells of the corpora cavernosa of the penis. The contents also of the cells was a bloody serum.

Similar multilocular cysts have been mentioned by pathologists. Mr. Paget records two, in both of which the septa were fasciculated like the walls of the right auricle, which were removed successfully. Mr. Paget thinks both of them may have had their origin in vascular nævi. That such was the fact with my little patient, who was only a year old at the time of the operation, the early history clearly shows. This specimen which I show now seems to have been a development of the natural structure of the parotid gland, but it was still erectile and congenital, and may properly be called a nævus.

It was impossible to remove this tumour entire without previous ligature of the carotid artery, and I chose to remove as much as possible and trust to suppuration.

I am not yet prepared to say how I should proceed in another similar case. It is certainly very difficult to cut them out entire, owing to the vascularity of all the structures adjacent, and to the intimate union which their walls have everywhere with these structures. In some regions such dissections would be totally impracticable. I should be unwilling again to trust to simple incision, or to partial exsection, on account both of the danger of hemorrhage and of the probable inefficiency of these measures. In the examples quoted by Paget, one of which was on the back and one on the pubis, and neither of which were congenital, the tumours were safely exsected; but the patients were much older than either of mine, and the writer has not sufficiently described the embarrassments of the operation, if any existed, to enable me to judge of its applicability to other cases.

I presume for the present we shall only attempt to cut them out entire, but my own experience might warn surgeons not to regard such procedures as always unattended with serious difficulties."—*Buffalo Med. Journ.*, Nov. 1856.

*Laryngotomy for Syphilitic Disease.*—Dr. GEO. AMERMAN, late House-Surgeon of Bellevue Hospital, narrates (*Northwestern Med. and Surg. Journ.*, Oct. 1856) an interesting case of secondary syphilis, in which laryngotomy was performed after apparent death, and the patient recovered. The subject of it was a woman,

twenty-five years of age, admitted into Bellevue Hospital, April 10, 1856. At the time of her admission, she had large bullæ over the whole upper part of the body and head. The throat was not carefully examined; and I am unable to say whether or not it was ulcerated. She had no dyspnoea or pain; her pulse was good, but her condition indicated an impaired constitution and a general syphilitic cachexia. She was ordered small doses of hyd. bi-chlo., with the tinct. cinch. co., good diet, and anodynes at night. About five hours after my visit, I was hastily summoned to her by the nurse, who told me she was dying. I found her sitting up in bed, unable to speak, and gasping for breath; her lips and ends of her fingers were livid, and the veins of the neck distended. The dyspnoea was so severe that it seemed to threaten immediate suffocation. On examining the throat, nothing was perceptible except a general redness of the fauces, which was most intense on the anterior surface of the epiglottis. Pressure over the larynx caused some pain. Inspiration was more difficult than expiration. Physical examination of the chest revealed nothing abnormal. The air entered the lungs, and was resonant throughout. It was thought expedient to try scarifications, which, however, proved useless. An emetic of zinci sulphas was next given, but without producing emesis. Her dyspnoea had now become so alarmingly urgent, that it was decided to open the air-passages. Laryngotomy was the operation proposed, as the obstruction was thought to exist in the larynx—probably at the vocal cords. Some time necessarily elapsed in preparing the instruments, &c., prior to the operation; and, just as I was about to make the first incision, the patient gave a gasp, and apparently expired. All respiration, or efforts to respire, ceased. The pulse, which had been before extremely feeble and rapid, now became more so; and, in half a minute after she ceased to breathe, her heart stopped pulsating. At the moment respiration ceased, I proceeded rapidly with the operation, and, in one and a half minutes, succeeded in introducing the tube. Artificial respiration was resorted to, and, in less than a minute (between one-half and one minute), natural respiration commenced. I think there was an absence of the respiration for at least two minutes, and of the pulse for at least one and a half minutes. The respiration ceased first, and was first restored. When the patient was fully resuscitated, her pulse, though feeble, was regular and much slower, her respiration perfectly easy, and she sank into a quiet and refreshing sleep. Some trachitis followed the operation; but her recovery was as rapid as could have been expected. She wore the tube for twelve days, when it was removed, and the wound allowed to close. Her rupia was treated with alterative doses of hyd. bi-chlo. and tinct. cinch. co.; but it seemed to have very little good effect, and, instead, large doses of iod. potassa were substituted, which acted promptly and beneficially. The large scabs became detached, and slowly separated, leaving a healthy ulcer underneath, which rapidly healed. Her recovery was complete. The wound in the throat closed, and respiration through the natural passages became free and easy.

Dr. Amerman states that, during his residence in Bellevue Hospital, laryngotomy was performed four times for syphilitic disease of the throat, and, in all the cases, the operation was successful. Two of them left the Institution entirely cured. In both, the tube was worn for a shorter time than one month, when they were able to breathe easily through the natural passages, all symptoms of disease of the throat having disappeared. The third case died, eight months after the operation, from lupus, which had extended to the base of the skull, and excited secondary arachnitis, which was the immediate cause of death. In this case, the tube was never removed. The fourth case was the one whose history I have given above. It was perfectly successful. The tube was worn for twelve days, when all signs of disease in the throat disappeared. This case is also interesting in two other particulars: *First*. As showing the necessity of the operation; and, *Secondly*, the complete relief afforded by it. So far as these cases go, they point to the conclusion already arrived at by some surgeons, that, in cases of acute disease supervening on chronic syphilitic affections of the throat, the obstruction is situated in the larynx, and that laryngotomy affords relief, and hence, being an easier operation than tracheotomy, should be performed.

*Vomiting of Forty Years' Duration.*—The following curious case of this character is recorded (*Boston Medical and Surgical Journal*, Oct. 30, 1856) by Dr. JACOB BIGELOW:—

"A lady, now 79 years of age, has been at times under my care for the last twenty years. She reports that at the age of 39 or 40 she had a severe fever, on recovering from which she found herself unable to retain either food or liquid upon the stomach in any considerable quantity. She is confident that during the whole period of forty years she has never retained a meal, but has vomited regularly at least three times a day. If she eats or drinks in irregular or intermediate hours, the material received is always thrown off, even if it be only a cup of tea or of water. The vomiting is easy, and without pain or great effort. The matter thrown up consists of the ingesta, having usually an acid taste. There is no bile, except during the presence of some temporary indisposition. She takes her food with relish, and in most instances throws it off quickly, being often obliged to leave the table abruptly for that purpose. If the vomiting is not complete, she occasionally drinks warm water to promote the evacuation and relieve uneasiness, especially at going to bed. She is confident that she ejects as much as she receives, but her daughter, who resides with her, thinks it may be three-quarters as much. This last supposition is undoubtedly nearest the truth, and would leave for her support one-quarter of each meal taken.

"She is now in her eightieth year, having led an active life, in the enjoyment of a competent degree of health, except an occasional attack of acute disease. She has four times had severe erysipelas, attended in two instances with considerable sloughing. She has had dysentery more than once. Last spring she broke the os humeri, and had an abscess in the shoulder. She is now in the enjoyment of fair health, the functions duly performed, and has made a journey of a hundred miles within a few months. She is confident that for the period which has been stated, including one-half of her life, she has never retained a single meal.

"I have never found any tumour, effusion, or tenderness on pressure in or about the epigastric region, except the occasional effects of acute disease, as above mentioned. Her habit has been generally spare, but otherwise her appearance, spirits, and bearing are those of a person who has been benefited rather than injured by the smallness of the nutriment left for her support."

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## TO READERS AND CORRESPONDENTS.

The following works have been received :—

*Des Anévrysmes et de leur Traitement.* Par PAUL BROCA, Agrégé à la Faculté de Médecine de Paris, Chirurgien des Hôpitaux. Ouvrage accompagné de figures intercalées dans le texte. Paris, 1856. (From the Author.)

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British Medical Journal. Edited by ANDREW WYNTER, M. D. January, February, 1857.

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Nashville Journal of Medicine and Surgery. Edited by W. K. BOWLING, M. D., and PAUL F. EVE, M. D. January, February, March, 1857.

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
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The Western Lancet. Edited by GEO. C. BLACKMAN, M. D. March, 1857.

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ART. I.—*Fractures of the Neck of the Thigh-Bone.* By R. D. MUSSEY, M. D., Professor of Surgery in the Miami Medical College at Cincinnati, Ohio. (With nineteen wood-cuts.)

CASE I.—Mr. S., aged 78 years, a hardy yeoman from one of the hilly districts of New England, when more than a hundred miles from home, upset his two-horse wagon, fell on his left hip, and could not get up. He was carried into a house, and was visited by Dr. J. C. Dalton, a highly distinguished professional gentleman, who pronounced the case to be one of fracture of the neck of the thigh-bone, and proceeded to apply a modification of Desault's long splint. In four or five days the patient became so restive under his confinement among strangers, that he employed a carpenter to prepare him a box which should receive a bed together with himself and splint, with a view to return home. When the doctor heard of this, he remonstrated with no small degree of emphasis against the project, but without avail; the old man said he might as well die in one way as another, and home he would go. When the box was ready, he was wagoned home, and was carried forty miles on the last day of his journey.

Eighteen days after the injury, I visited him. He made a somewhat singular appearance lying in his box, which, to accommodate himself and splint, he being over six feet high, was not much less than ten feet in length. On removing the bedclothes, I perceived that his knee and foot were turned considerably outwards. I took off the splint, and gave some passive motion to the hip, without his complaining of pain; I then flexed the thigh to a right angle with the body, and kept it a minute or two in that position. This, too, was done without giving pain. On flexing the thigh to an angle a little acute, he complained that it hurt him in his groin. Pressure with the fingers upon

the groin and behind the trochanter major, both in the flexed and extended position of the limb, gave him decided uneasiness. I compared the length of the limbs, as well as I then could, without being able to satisfy myself that there was shortening of the injured limb. I then asked the old gentleman if he wished to get up. He said that he did, but could not. He was assisted to get into a chair, and sat for some time. From that day onward, he wore no splint, and was got up from his bed daily. I gave it as my opinion that the neck of the bone was not fractured, inasmuch as it had strength enough to support the weight of the whole limb for a minute or two, but did not satisfy myself as to the exact nature of the injury. Soon after this, I received a letter from Dr. D., who expressed surprise at the opinion which he understood I had given, saying that, on his first visit to the patient, he found the limb everted and shortened more than an inch, and also detected crepitus. I wrote him in reply, that I founded my opinion on the fact that there was strength enough in the neck to support the limb without causing pain or doing manifest injury. In the course of four months, the patient could walk with a cane, but remained lame, and could never ride horseback, as he had formerly been accustomed to do.

Between two and three years after this, he died of an acute attack of visceral disease. The bone, on being carefully cleaned, presented the following appearances, viz., the neck shortened, and on its front a groove or depression running in a zigzag direction close to the head. The shaft rotated outward, so as to bring the corona of the head within one-third of an inch of the posterior inter-trochanteric ridge; while the distance of the corona of the head from the anterior inter-trochanteric line is one inch and three-eighths;

Fig. 1.



Fig. 2.



and the head sunk below the level of the top of the trochanter major, making a shortening of more than half an inch. (*Vide* Fig. 1.) A vertical section

of this made by a saw, shows a consolidation of the fracture by a deposit of a mass as compact and white as ivory. This is well shown in Fig. 2.

In the year 1830, I showed this to Messrs. Roux and Amussat, and some other professional gentlemen in Paris; they regarded it as a fair specimen of bony union of intra-capsular fracture. In London, I also showed it to Mr. Lawrence, Mr. Travers, Mr. Stanley, and Dr. Hodgkin, who was then Curator of the Museum at Guy's Hospital. These gentlemen were interested with the specimen, and considered it as a satisfactory example of bony union within the capsular ligament. On my presenting it for inspection to Sir Astley Cooper, he remarked, "This bone never was broken." I said, "Sir Astley, please to look at the interior of the bone." He separated the two halves, and said, "This does look a little more like it, to be sure; but I do not think it is wholly within the capsular ligament." It is well known that Sir A. Cooper, for some years, had taught the doctrine that bony union does not take place in intra-capsular fracture. His views, among the surgeons of Great Britain, were extensively admitted as correct.

At Edinburgh, I showed it to that distinguished surgeon, John Thompson, whose work on inflammation had given him extensive notoriety. On carefully inspecting it, he declared, "upon his truth and honour," that it had never been broken. An opinion had prevailed for some time among surgeons, that in old persons the head of the thigh-bone is liable to sink below its ordinary level, with more or less shortening of the neck; which occurs in certain morbid conditions without the aid of mechanical violence. Mr. Thompson regarded this as an instance of that kind of change.

After returning to America, I obtained the right thigh-bone from the same skeleton. Fig. 3 gives a very correct delineation of the head, neck, and upper part of the shaft of this bone. Between this and the other specimen, the difference is very striking. The neck of this exhibits the ordinary angle with the shaft, and there is no depression of the head, and no mark across the neck.

The professional gentlemen of our country who have examined these specimens, unhesitatingly pronounce this to be a case of union by bone of intra-capsular fracture.

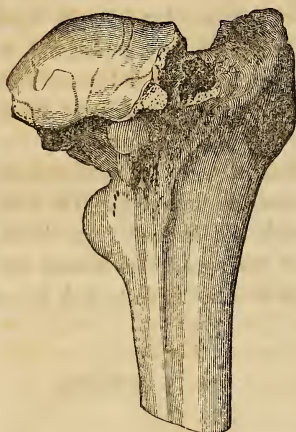
CASE II.—Mr. N., a corpulent man, aged 51, on getting out of his chaise, fell upon his left hip, and was unable to walk. I saw him on the third day

Fig. 3.



after the injury, and found the knee and foot everted, and the limb shortened from an inch to an inch and a third. I could extend the leg to within about one-third of an inch of its natural length. When extended and rotated, it gave a distinct crepitus. I applied a long splint, modified from Desault's by Dr. Hartshorne, of Philadelphia. With this I kept up permanent extension; but was never able to bring the limb to its full length. When an attempt was made to do so, the patient complained of great pain in the groin. During the whole course of treatment, the limb remained from a third to half an inch shorter than natural.

Fig. 4.



A compress over the trochanter major was supported by the outer splint with a bandage around it including the pelvis. And, to counteract the tendency to external rotation, a pretty firm compress was kept behind the trochanter major, and the space between the mattress and the outer and back part of the limb was also occupied by a suitable compress. The splint was removed in eighty-four days; the patient from that time was able to sit in a chair, but could never flex the thigh quite to a right angle with the body. The limb was kept somewhat extended upon the carpet when he was in the sitting position. He ultimately walked with a cane. The shortening was relieved by a high-heeled shoe.

He survived the injury twelve years; and eight years after his death I obtained the specimen of injured bone, together with its fellow.

Fig. 5.

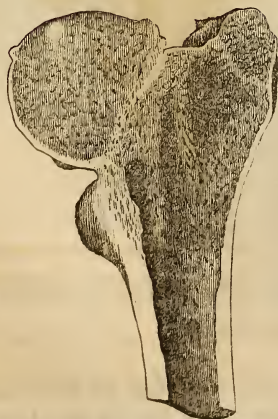


Fig. 6.



Fig. 4 is the injured bone. The head a little elongated and depressed, with a shortening of five-eighths of an inch; and much absorption of the neck. The distance of the corona of the head from the anterior inter-trochanteric line is seven-eighths of an inch; and the corona, posteriorly from the ridge, scarcely one-fourth of an inch.

Fig. 5 shows entire bony consolidation of the fracture.

Fig. 6 is the front view of the uninjured bone of the right side. The distance of the corona anterior from the inter-trochanteric line one inch; posterior, ditto, one and a quarter inch.

CASE III.—Mrs. S. Mason, aged 73, a small, thin woman, was rendered helpless by falling upon her right hip. Two days after the accident, I was called to see her in consultation with my friend, Dr. Wm. Judkins, who was in attendance. The knee and foot were a little everted, with slight shortening, and tenderness on pressure in the groin and behind the trochanter major. She was averse to the application of any kind of splint, and, being in a delicate state of health, we allowed her to remain upon her couch, with the thigh and leg somewhat flexed and supported by a pillow. She remained in this situation about three months; after which, she could move with the aid of crutches, in a manner not very satisfactory to herself. She died in a year and a half after the accident, worn out by age and exhaustion.

Fig. 7 is a delineation of the injured bone. A considerable ridge runs across the anterior part of the neck, with a depression or irregular superficial groove between it and the head. The head of the bone is three-eighths of

Fig. 7.

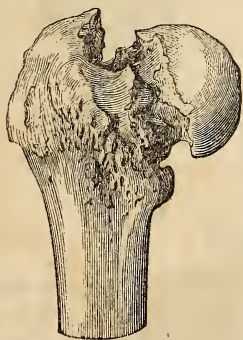


Fig. 8.



an inch below its natural level. The distance anterior from the corona of the head to the inter-trochanteric line, is seven-eighths of an inch; posteriorly, half an inch.

Fig. 8 shows the interior of the bone, with a narrow, white, and eburnated line, corresponding with the aforesaid ridge, exhibiting a firm consolidation; the neck somewhat shortened.

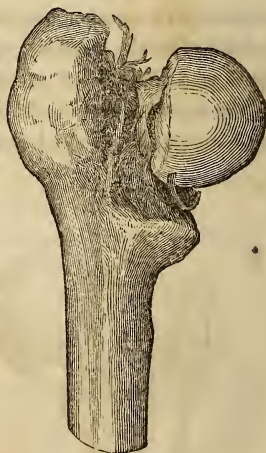
CASE IV.—Mr. F., æt. 82, a hardy yeoman, who had spent most of his life in Kentucky, fell upon his hip on a slippery sidewalk. He was helpless, and complained of great pain under any attempt at motion of the hip-joint. The limb was shortened, but to what extent could not then be ascertained, as he was unwilling to submit to much manipulation. It was judged best, by Dr. Fore and myself, to leave him without dressings. After three months lying upon his bed, he could move upon crutches. In the course of a year, he occasionally got about with a staff. He died in two years from the time of the injury. The *post-mortem* examination showed the bone with an intra-capsular fracture: the osseous portion of the neck wholly gone, and the entire of the osseous surfaces of the two fragments occupied by strong fibrous bands of one-third of an inch in length. The head, when pressed downward, just rested upon the trochanter minor, causing a shortening of one inch and an eighth. The strength of this fibrous production was amply sufficient to sustain the weight of the body.

Fig. 9 is a posterior view of this bone. The dark space between the head and trochanter major is designed to represent the fibrous connection of the two fragments.

Fig. 9.



Fig. 10.



CASE V.—Fig. 10 exhibits a posterior view of an intra-capsular fracture of the neck of the os femoris. The specimen is without history. It is interesting on account of the ligamentous connection of the fragments, which, from appearances at the time it was obtained, must have been sufficient for the ordinary purposes of locomotion. The bony portion of the neck absorbed.

CASE VI.—Fig. 11, without history, shows a fracture at the neck which corresponds with the anterior inter-trochanteric line. The shaft is rotated very considerably outward. It is interesting from the evidence it affords that the fragments were never entirely separated from each other.

The head, unchanged in form, is depressed three-eighths of an inch below its proper level; its corona, from the anterior inter-trochanteric line, one and three-eighths of an inch; posterior, ditto, three-eighths of an inch; the neck in front not shortened.

Fig. 11.



Fig. 12.

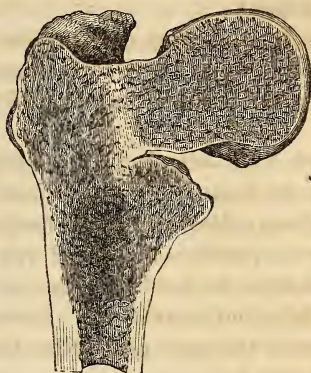


Fig. 12 shows the line of osseous consolidation of this fracture. In this figure the neck appears longer than in Fig. 11, which has been somewhat foreshortened by the engraver, the better to represent, as he supposed, the backward rotation of the shaft.

Fig. 13.



CASE VII.—Fig. 13. Without history. Head depressed; shortening nearly the fourth of an inch; an irregular depression or wide groove in the upper and anterior part of the neck. The corona of the head from the anterior, one and a half inch; posterior, one-fourth of an inch.

Fig. 13, *a*, showing the irregular depression of the upper and anterior part of the neck.<sup>1</sup>

Fig. 13, *b*, showing the cancellous tissue somewhat changed from natural, and indicative, as I have always supposed, of the effects of violence, causing more or less fracture or crushing of the bony texture.

CASE VIII.—On the 22d of last September, Dr. J. B. S. Jackson, brought before the Boston Society for Medical Improvement, a specimen of the right thigh-bone exhibiting a partial fracture of the neck. The fracture, commencing at the junction of the head with the upper part of the neck, extended to within about the fourth of an inch, or a little more, of the periosteal surface of its inferior and internal wall. Downward pressure upon the head opened the fracture at the upper part further than I should have expected, obvious and free motion being observable throughout its whole extent. On withdrawing the pressure, the opening closed, squeezing out the water in which the specimen had been recently immersed. The following is its history:—

The patient, a healthy man of forty-two years, to whom this belonged, fell through two stories of a building upon a hard floor, fracturing his back-bone

Fig. 14.



Fig. 15.



<sup>1</sup> In all these measurements of distance of corona of the head from the inter-trochanteric lines, the point selected has been midway between the upper and lower part of the neck.

and the middle third of the shaft of the right thigh-bone, nearly in a transverse direction, complicated with another fracture extending upward from this, splintering the bone for several inches. The patient, admitted to the Massachusetts Hospital, under the charge of Prof. H. J. Bigelow, survived the accident eighteen days. The fracture of the neck was so extensive that the unbroken part would have been hardly sufficient to support the weight of his body under an attempt to walk, had he sustained no other injury. The wall of the shaft was compact and healthy looking. This specimen was justly regarded as quite remarkable, its like not being known to have a place in any museum.

Fig. 14 shows the line of fracture in front, and

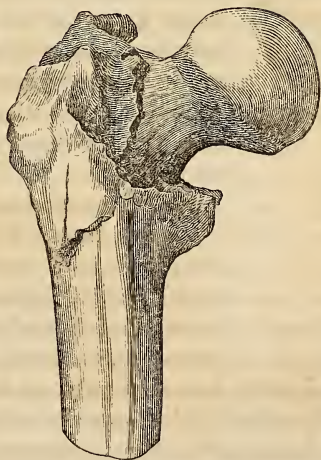
Fig. 15, a posterior view of it. The middle curved line in the lower part of the figure represents the terminal part of the longitudinal fracture of the shaft.

Dr. Jackson has kindly given me the following items: "The length of the anterior line of fracture from the middle of the upper part of the neck to its termination, as measured by a waxed thread, is two inches and eight-tenths of an inch. The distance between these two points, as measured by the callipers, is one inch and a fraction over five-tenths of an inch. The distance between the anterior and posterior terminal points of the fracture upon the inner wall of the bone is nine-tenths of an inch, following the curve of the bone, and measuring with a thread, as above. The distance between these two points, with callipers, is eight and a half tenths of an inch."

The following four specimens of fracture are without history:—

CASE IX.—Fig. 16. Fracture, partly intra and partly extra-capsular. No attempt at union.

Fig. 16.



CASES X., XI., XII.—Figs. 17, 18, 19. Extra-capsular fracture, consolidation, large bony deposit.

Fig. 17.

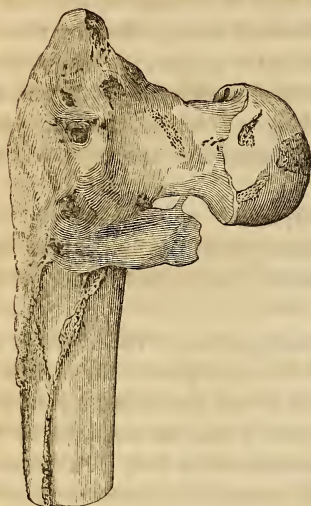


Fig. 18.

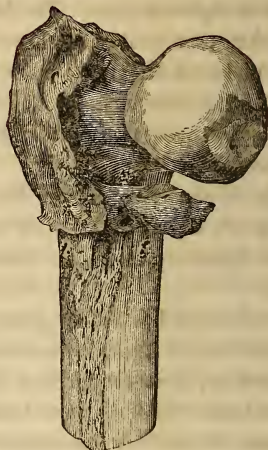
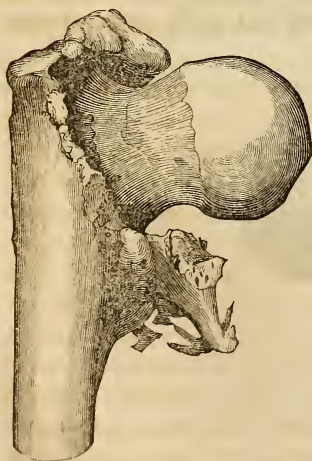


Fig. 19.



Under the influence of disease, the form and direction of the head and neck of the thigh-bone are liable to considerable changes; but these changes take place without any appearance of the bony texture having given way, or been crushed by mechanical violence. Rarely a specimen is met with in which there is a line, or superficial depression, or uneven surface upon the upper and anterior part of the neck, together with a sinking of the head below its ordinary level, and an alteration of the cancellated texture corresponding with the superficial mark; the other parts of the bone showing no evidence of disease having existed.

Fig. 13 is a specimen of this description.

In 1830, I saw at St. Bartholomew's Hospital, London, a specimen exhibiting the heads of both thigh-bones equally depressed below their ordinary level, and a similar line across the neck of each. Whether the shafts were rotated outwards, I cannot now confidently say, but the appearance of them was so like Fig. 13, which I had a few weeks before procured in Paris, that I regarded them as belonging to the same category, and their abnormal

characteristics as probably the remote effects of mechanical violence. To this interpretation it was objected, by a gentleman present, that a force could not be believed to have been so equally applied to both bones, and that, therefore, disease or decay must have been the origin. If so equal an application of force be necessarily *rare*, and I have not met with another specimen like that at St. Bartholomew's, still it is not impossible. In the Museum of the City Hospital, New York, is a remarkable specimen, showing the upward and backward dislocation, by violence, of both hips. The head and neck of each thigh-bone lie upon the dorsum ilii at the same level. A fall with equal force on both feet or knees, the thighs being in the same relation to the median line, and under a certain degree of flexion, might cause a dislocation, and, when extended, a fracture. The patient, a German laborer, was crushed by the falling of a bank of earth upon him. Two unsuccessful attempts at reduction were made in the hospital. The man died several weeks after the accident in a state of squalid emaciation.

Dr. R. W. Smith, M. R. I. A., in his admirable work on *Fractures in the Vicinity of Joints*, mentions having seen an example of fracture of the radius on each side, in a man who fell with great force upon the palms of his hands. "The lower extremity of each radius was broken about three-quarters of an inch above the wrist-joints. The inferior fragments were displaced backwards, and the deformity presented precisely the same features upon each side."

From the same distinguished author, we have the opinion that "the doctrine of partial fracture of the cervix femoris has not been established." The bone exhibited by Prof. J. B. S. Jackson (Figs. 14, 15), while it settles the question of the possibility of such fracture, does not invalidate the criticisms of Dr. Smith upon the cases of supposed partial fracture referred to by two eminent surgeons in Great Britain.

It cannot be doubted that fracture of the neck of the thigh-bone sometimes occurs in which bony union takes place without the fragments ever having been entirely separated. The case of Mrs. S. Mason (Case III., Figs. 7 and 8) must be considered as an example. There is a ridge across the front part of the neck, with a depression between it and the head; the neck a little shortened; the shaft rotated outward so as to approximate the posterior intertrochanteric line near to the head, and the head is somewhat depressed below its ordinary level. These features, joined with the history of the case, may be explained on the supposition that the fragments, at the time of the injury, were mutually driven or implanted into each other, and became consolidated in that position. If the fragments had been entirely separated, it should seem that, as no dressings were applied in the case, the action of muscles must have kept up a permanent displacement. A momentary inspection of Figs. 11 and 12, must be sufficient to show that the fragments were not entirely separated after the injury. The line of consolidation, as marked on Fig. 12, is wholly intra-capsular; the fragments having been kept *in situ* after the injury, perhaps, by the cervical ligament, or the mutual crushing into each other

of the fractured surfaces, or both. Sometimes, a fracture in a zigzag line, forming on each fragment toothed prominences, which interlock with each other, may be regarded as one of the means of preventing displacement and promoting bony consolidation.

In some instances of this fracture, patients have been able to walk soon after its occurrence. A distinguished member of the Boston bar, G. Blake, Esq., over sixty years of age, in ascending a long flight of slippery stone steps, in the Massachusetts State-house, fell, but immediately got up, walked up the remaining part of the stairway to the Senate Chamber. Soon after taking his seat, he got up to make a speech, but had not proceeded far before he felt a pain in his hip, which induced him to sit down. This soon became so severe that he was taken to his house in the city. The late Dr. J. C. Warren, then Professor of Surgery in the Boston School, was consulted, who declared the case to be one of intra-capsular fracture of the neck of the thigh-bone. Mr. B. was confined to his couch for some months; I think Dr. W. stated to me, without the application of a splint. After this, he occasionally rode out, walked with the aid of a cane, but seldom appeared abroad, as he did not like to exhibit himself in a limping gait. Two years from the injury, he died from visceral disease. Dr. W. had the opportunity of preserving the bone. There was a toothed form of fracture, wholly intra-capsular, sinking of the head below its natural level, with bony consolidation.

A Pole, not far from fifty years of age, was brought into our City Hospital at Cincinnati, several years ago. He had fallen on his hip, and professed to be unable to walk. I examined with care the limbs, but, for the first two days, could find no difference in the length of them. At the groin, and behind the trochanter major, there was a degree of tenderness on pressure. The second night after his admission, he got up and walked from his bed to the stove in the ward, a distance of four or five yards, as reported by one of the nurses. The next morning, on a careful comparison of both limbs, I made out a shortening of about a fourth of an inch, with slight eversion of the foot. The day following, there was a shortening of half an inch. I then applied a long splint, which kept up a degree of permanent extension for upwards of two months. After this, the man moved about the ward with crutches, and in a few weeks was discharged from the hospital with three-fourths of an inch shortening of the limb. My opinion was, that, at the time of the injury there was either a partial or complete intra-capsular fracture, the fragments being held together by the cervical ligament or the form of the fracture.

Several years ago, in the north part of Vermont, a very intelligent member of the profession, Dr. Colby, was consulted in the case of a woman who had recently fallen and lamed her hip. The doctor considered it to be a case of fracture of the neck of the thigh-bone, although the patient had walked a few steps. He directed the horizontal position, and applied an extending splint. She was kept in this situation for a month, during which time she showed

symptoms of mental aberration; from this state, however, she ultimately recovered. She was able to walk after her confinement without any considerable degree of limping, or evidence of much shortening of the limb. The husband prosecuted the doctor for causing insanity by confining his wife, there having been, as he and his instigators alleged, no fracture. This case was in the law for some years, but, as I have understood, was ultimately taken out of court, each party paying his costs. In ten years from the time of receiving the injury, the patient died. Both thigh-bones were taken, and the bone belonging to the injured limb had a ridge across the neck, while the head was so far depressed as to shorten the thigh-bone three-sixteenths of an inch. There were some few professional men who still alleged that there had been no fracture; but a number of eminent surgeons to whom both bones were presented for inspection, among whom was Dr. Warren, of Boston, decided that there *had been* fracture. From the description of the injured bone, given me by Dr. D. Crosby, Professor of Surgery in the New Hampshire Medical Institution, I should regard it as exceedingly like that of Mrs. S. Mason (Case III., Figs. 7 and 8), there being a distinct intra-capsular ridge across the anterior part of the neck; the fragments must have been by some means preserved from separation till the consolidation was accomplished.

The processes instituted by nature for the reparation of fracture are not without interest. When a fracture takes place in a situation where the broken surfaces are left in undisturbed contact, bony union follows without the deposit of callus. Fracture of the bones of the cranium is an example. When the fragments are subjected to a good deal of motion, there is deposit of bone-forming callus. Fractures of the limbs of the lower animals, that get well without the interference of surgery, show a large amount of callus. In situations where callus would essentially interfere with the ordinary functions of a part, as in intra-capsular fracture of the neck of the thigh-bone, we find no callus deposited, but if the fragments can be maintained in quiet apposition—whether by the cervical ligament, the mutual implantation or impaction of the broken surfaces, or by mechanical appliances—the injury is repaired by bony consolidation; whereas, when there is free motion of the fragments upon each other, reparation, if it takes place at all, is brought about by fibrous or ligamentous connection. So in fractures of the patella, callus is not formed, but osseous union takes place in vertical fractures of that bone, and in transverse also, when the fragments are kept in apposition; but when not, there is ligamentous connection only. I have seen a fracture across the astragalus, from its upper to its lower articular surface, which was united by bone without the least deposit of callus. In extra-capsular fractures, where there are several fragments exposed to much motion, the reparation is accomplished by the deposit of new bone cementing the fragments together; and the more considerable the motion of the fragments, the greater, probably, is the amount of callus. When the small trochanter is implicated, subjected, as it must be, to a good deal of motion from the two strong muscles

inserted into it, an exuberant bony deposit is generally observable. In confirmation of this, reference may be made to Cases X., XL., and XII. (Figs. 17, 18, and 19), of the present series of engravings; also, to Dr. Smith's delineations, Cases XXXVII., XLI., XLIX., LIV., and LV.

All, then, that is required for the bony reparation of fracture, the constitutional health being good, is the undisturbed apposition of the broken surfaces. Thus, in those forms of extra-capsular fracture in which the neck of the thigh-bone is driven into and firmly impacted in the cancellous texture of the great trochanter, osseous union follows independently of callus; but when there are several fragments which are exposed to motion, callus steps in to hold them steady until the injury is repaired. When a fracture lies within the capsule of a joint, callus is not admitted there, as it would abridge or destroy the natural motions of the articulation; and the work is done by a flexible fibrous bond of union, when the broken surfaces are too far asunder, or have too much mobility for bony solidification. Is not all this as it should be, and does it not afford proof of intelligence and wisdom behind, giving direction and guidance to these processes?

I have a remarkable specimen, obtained without history, of dislocation of the shoulder-joint complicated with fracture of the large tubercle of the os humeri, and also of the coracoid process of the scapula. The head of the os humeri lies on the thoracic side of the neck of the scapula, and is firmly ankylosed to it; the large tubercle is cemented to the lower and outer part of the surgical neck of the humerus; while the terminal portion of the coracoid is fast adherent to the surface from which the great tubercle was torn. What arrangement of the parts in this complicated injury could have been better, or even as well, made? A bad dislocation of the shoulder remaining unreduced, the great tubercle and coracoid, with their muscles attached to each, subjected to irregular and ill-directed motions. Inasmuch as there could be no longer a shoulder-joint, for the benefit of the upper arm, was it not well to make the blade and arm-bone and broken pieces a fixture, in order to secure the greatest amount of utility for the forearm, as that is flexed largely, and, in a degree supinated by the action of the biceps, which must require fixed points of attachment for its two heads?

In the treatment of intra-capsular fracture of the thigh-bone, could we learn the precise position of the parts in the injury, we might, in some instances, leave the case without the application of splints, cases having repeatedly occurred in which the fragments were held in place till osseous union was accomplished. In healthy subjects, if the shortening be but little, the presumption is that nature can do the work, if the patient can be kept at rest; but so many instances have occurred in which, after several days, a great degree of shortening has suddenly taken place, that it may be well to apply some form of extending splint for at least a few weeks. The case of Mrs. S. Mason (Case III., Figs. 7 and 8) did exceedingly well without dressings. When the patient is very fat, in feeble health, advanced in life, with the

weather hot, the confinement for several weeks, by a splint, can promise but little, if any, benefit. In the case of S. (Case I., Figs. 1 and 2), there was shortening, according to Dr. D.'s account, of more than an inch; there must have been a rupture, more or less, of the upper part of the cervical ligament, while at the lower part of the neck the ligament was left entire, and probably aided in guiding the toothed fractured surfaces into each other when extension was made. This was continued for eighteen days, during which time the probability is that so much adhesion had taken place as to prevent displacement afterwards. In N.'s case (Case II., Figs. 4 and 5), there was certainly shortening to the extent of considerably more than an inch, and I cannot help believing that the dressings, including the pressure upon the trochanter major, and the support behind it, must have been necessary to the bony consolidation of the fracture.

In fractures of the lower limbs, in order to ascertain their comparative length, I have for several years been in the habit of placing the patient on his back with the limbs extended, upon a level surface at least as firm as a mattress, and having a line extending from the middle of the upper part of the sternum, over the symphysis pubis and downward below the feet, held straight by assistants, to represent the median line of the body, while the two internal malleoli of the tibia are brought in contact with this line. In this way, a very small difference in the length of the limbs, certainly less than the one-fourth of an inch, can be ascertained. The measurements between the anterior superior spinous process of the ilium and the patella are liable to inaccuracy, from the difficulty in having both thighs flexed precisely at the same angle, and under the same degree of adduction.

CINCINNATI, January 15, 1857.

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ART. II.—*Mercurial Muco-Enteritis*. By WM. H. BYFORD, M. D., of  
Evansville, Indiana.

IF I were asked what was the most constant evidence of the constitutional effect of mercury, I should say inflammation of the mucous membrane of some portion of the alimentary tube. Doubtless, the most frequent site of this specific inflammation is the mouth, but certainly not always, or exclusively. In a vast number of cases in which mercury is administered with a view to its general effect, we are annoyed, if not interrupted in its use by excessive irritation of the bowels, before the gums are "touched," or a metallic taste is experienced by the patient. This irritation is, I think, commonly regarded as an immediate cathartic impression, or the purgative effect of supersecretion from the liver. Careful and somewhat extensive observation induces me to believe that both of these last are the effects of a specific mucous in-

flammation, just as salivation and enlargement of the salivary glands are produced by the inflammation of the mucous membrane of the mouth. Everybody is familiar with inflammation of the mouth and salivation from mercurial inunction. When the mercury is taken internally, or applied externally, it will produce stomatitis.

This is a rule. I am satisfied that it will also produce duodenitis, colonitis, and rectitis, and when persisted in too long, these may become unpleasant, if not dangerous complications. We should always, therefore, regard copious serous stools, with burning pain in the epigastrium and umbilical regions, or tenesmus and frequent mucous and bloody stools, as an indication for the withdrawal of the remedy, as having produced its specific effect upon the organism. These reflections have resulted from observing cases like the following:—

In March, 1855, while treating V. R., a remarkably stout young man, of bilio-sanguine temperament, for traumatic iritis, I gave him calomel and opium for three or four days at intervals of three hours. At the end of the fourth day, on visiting R. in the evening, I found him with excessive tenesmus, burning pain in the rectum, constant disposition to stool, &c. In fact, the symptoms were thoroughly dysenteric. The discharges were small, and consisted of mucus and blood, coloured with bile. He stated that about ten o'clock in the morning he had two large bilious evacuations, succeeded by these small ones; that he had to be up every ten minutes, and felt like it would be a relief to discharge the contents of his whole abdomen. In a few days, by the use of large opiates, cold injections, mucilaginous drinks, and fomentations to hypogastrium, he was entirely relieved from the symptoms. As the inflammation of the iris, although better, was not subdued, I thought it advisable to use more mercury, and to avoid, as I hoped I could, the irritating effects upon the bowels, I resorted to inunction. In about a week's continuance of it externally, the same sort of an attack supervened, and produced so much prostration that I was uneasy as to its results. He, however, recovered from it in a few days. In both instances there was no stomatitis whatever, and no increased flow of saliva.

M. W., about forty years of age, came to me labouring under a severe form of chronic ophthalmia, attended with extensive ulceration of the cornea. After proper depletion—for he was robust and plethoric—I tried to induce mercurialization as soon as possible. In four or five days, he was attacked with gripings, abdominal fulness, burning pain in the epigastric and umbilical regions, followed by copious serous discharges for three or four evacuations in quick succession. The discharges became gradually less, and in the course of seven or eight hours were very small, and composed of bloody mucus, attended with tenesmus, and excessively frequent attempts to evacuate, and constant desire to do so. These symptoms required active treatment for two or three days before they were subdued. Twice after this the same patient was brought under the influence of mercury, once by internal administration,

and once by inunction. In both instances, the same train of symptoms was present.

I have selected the above two cases to show the more severe form of intestinal inflammation caused by mercury, and also because they were both apparently in good health and sound in every respect, except the eyes. I have had many similar cases in my practice since my attention has been thus directed, and I find the same symptoms to result indifferently in the cases of inunction or administration by the mouth. It is not usual for the symptoms to be so violent as in the cases I have narrated. More frequently the symptoms form more gradually, and do not attain this severity.

Although neither of these cases showed any signs of ptyalism, others that occurred were complicated by this symptom. These cases have so often occurred in my practice that, although it would be unnecessary to describe them, I have been led to ascribe especial importance to them, and regard them as presenting one of the specific effects of mercury. The importance of attending to these manifestations will be apparent, when we reflect on the effect of mistaking them for adventitious occurrences, or its mere purgative influence. A continuance of the remedy, *guarded* by opiates, after these unequivocal signs of saturation, would be to aggravate them to a dangerous degree.

Last year I was called, in council with another practitioner, in a case of pneumonia, in which the patient, as I thought, died from the additional prostration caused by mercury, in hypersecretion and exhausting pain and efforts at stool. The patient was about fifty years of age, rugged, and in so good a state of health as to warrant pretty copious depletion, tart. antimony and mercury as very appropriate treatment. On the eighth day, the intestinal irritation above described supervened, and from its obstinate continuance, on the fourth after its first appearance, the patient died. I inferred that the fatal result was brought about by the secondary disease arising from mercury, from the analogous cases I had before observed, and the fact of the pulmonary symptoms having subsided two days before death.

These are instances of the cumulative and explosive effects of mercury, and must not be supposed frequently to occur; and, as will readily suggest itself to the thinking physician, are parallels in this respect to the destructive sloughing stomatitis, which may either kill the patient or mutilate him for life. With proper circumspection, neither of these need be more than exceedingly rare accidents. I address the profession in this way in order to express my conviction, that the inflammation in different portions of the alimentary tube accompanying the use of mercury is, equally with ptyalism, a sign of mercurialization, and indicating the same necessity of withdrawing, either partially or entirely, the cause which produces it, instead of combining opium with it to *guard* the bowels. This last course is like smothering a fire with an increase of combustible materials.

It may be said that the cases in which intestinal inflammation is manifested occur only in persons of peculiar or idiosyncratic organization. However this may be, I am sure that it is not a rare phenomenon. I would remark that where mercury produces a mild sore mouth or laudable salivation, we may expect its beneficial effects upon disease to be greatest. On the other hand, when it is attended with much sloughing of the gums, cheeks, or lips, its good effects are not so likely to follow. This is the rule, I think also, as to the comparative intensity and its good constitutional effects in intestinal inflammation.

It is impossible, I think, to predict, from the appearance of a patient, what will be his susceptibility in this respect; but I have found intestinal irritation to occur more frequently in persons who were difficult to affect by it, and required several days to influence them with it.

I do not think these facts should deter us from using mercury in any case where it is indicated. They should merely inculcate great care and watchfulness in administering it, and the necessity of an intelligent understanding of all its earlier manifestations. In this way we may circumscribe its power and control it for good. I confess that I am one of the few, or many, whichever it may be, who do not believe that mercury will ever be entirely replaced by a substitute. Every year, it is to be hoped, will teach us better how to use it; but I do not think we will ever learn how to do without it. One fact should always be remembered, and that is, that it is a powerfully exhausting remedy, and the freedom or cautiousness in using it must depend upon the stage of the disease and the vigour of constitution. The *early* stages of sthenic inflammation is the time to use it most freely; and as the disease advances into the stage of structural lesion, much more caution is required to keep from doing harm. Always, when we have time, as in chronic or sub-acute disease, its good effects will be greatly enhanced by its very slow administration. In chronic cases, it will be very advisable to spend two or three weeks in bringing the system under the influence of mercury.

The conclusions to which I have arrived from considerable experience, and which I think are derivable from this paper, are, that the specific acute inflammation produced by mercury has its site, 1st, most frequently in the mouth; 2d, very frequently in the lower portion of the colon and rectum; 3d, not so often in the duodenum; 4th, situated in all these localities, it may be combined with stomatitis or not; 5th, that inflammation may be produced in any of these localities either by internal use or by inunction, and probably also fumigation.

ART. III.—*Report of Five Cases of Delirium Tremens treated by the Inhalation of Chloroform.* By F. M. GARRETT, M. D., of Tarboro', N. C.

I SEND you a report of five cases of delirium tremens, treated by the inhalation of chloroform, after other remedies had failed to produce sleep or quiet the patient. The cases occurred in Bellevue Hospital, during my service as Sen. Assistant in that institution; and, as there was some doubt as to the propriety of the treatment, notes were taken of all the symptoms bearing on the effects of the chloroform.

As the treatment has recently been severely strictured, in your *Journal*, it seems to me only right that whatever of success may have attended its trial, should be told also. Its success was so signal, as administered in the Hospital, that it demands a fair trial from the profession. It was used in no case except as a last resort, when other remedies had failed to quiet the patient, and it was evident that unless sleep could be produced soon, death must follow. Under these circumstances the remedy seems justifiable, and if it has succeeded in some cases, then others should have the benefit of its trial.

CASE I. Prof. J. T. Metcalfe, Visiting Physician; Frederick Elliot, M. D., House Physician.—William Erson, aged 34 years, a native of Ireland, by occupation a clerk, was admitted in ward 9, on the 16th of September, 1852. Patient states that he has been drinking excessively, and exposing himself to cold, by sleeping out on several occasions. He has slight catarrh, is very nervous, and complains of cramps and pains throughout the body. Tongue is coated with brownish fur, and bowels considerably relaxed. Ordered ℥ss of brandy, with ℥x of tinct. opii, every hour, until sleep is produced.

Sept. 17. Slept well the past night, and this morning feels much improved.

18th. Slept none last night, on account of a patient near him with delirium tremens. This morning feels quite nervous and uncomfortable. Ordered brandy in same quantity as before, with ℥x of Magendie's sol. of morphia every hour. Nourishment to be given as often as he wishes it. At the evening visit, patient showing no disposition to become quiet, ℥xxx of Magendie's sol. of morphia were given, to be followed by ℥xx every hour afterward, until sleep was produced.

19th. Very restless this morning, having slept none during the past night. Continue the treatment. About night he began to grow wild, showing no inclination whatever to sleep. At 10 o'clock P. M., he was furious—his mind filled with the most horrible fears and imaginations. The surface was bathed in a profuse, cold sweat. It was decided now to try the administration of chloroform, as it was believed he would not live through the night, unless sleep was produced. f℥ij were inhaled, when the patient was breathing stertorously. The administration occupied half an hour. At its commence-

ment, the pulse was 144; when under its influence, it was 128. Respirations nine per minute. There were several convulsive movements during the inhalation. He slept soundly for about one hour, when he awoke, but almost instantly slept again. This occurred two or three times during the night.

20th. Patient expresses himself as greatly improved, and feels able to write. He is perfectly rational. No treatment except good diet and quiet. From this time he improved, and was discharged the 24th.

CASE II. Dr. McCready, Visiting Physician; Dr. H. K. Olmstead, House Physician.—Richard Curry, aged 40, a native of Ireland, labourer, was admitted November 10, 1851. Patient is of good constitution, and health generally good. Habits have been intemperate for the last five or six years. Two months ago he had delirium tremens, with incoherency of the mind and muscular tremor, which lasted two days. Took only salts and senna.

For two weeks before admission, had been indulging more freely than usual in alcoholic stimulants, when suddenly abstaining from his accustomed excesses, he was seized with loss of appetite, tremor of limbs, loss of sleep, and frightful dreams when dozing.

When admitted, pulse over 120, and very small; eyes injected, skin cool and clammy, tongue thickly coated; bowels moved twice in last twenty-four hours. Patient was restless, but not at all violent. Ordered tinct. opii, ℥℥, in ʒij of brandy. After taking two doses he slept some during the night.

Nov. 11. Patient not much better. Mind wanders considerably; his delirium of a busy kind. Pulse 100.

12th. Patient has slept none during the past night. Became so wild as to require confinement to his bed. Pulse same as at last note. Ordered tart. ant. et potass., morph. sulph., āā gr. j; aqua cinnam. ʒj;—one tablespoonful every hour. After taking the whole, no effect was visible. At 8 P. M., patient could not be kept in bed but by force. Trembles violently, and is bathed in perspiration. Eyes suffused; pulse 120. A drachm of chloroform was poured on a towel, and applied to the nose—the pulse having been closely watched by an assistant. After inhaling about two minutes, a slight tremor of the lower extremities was noticed. No change in the pulse. The towel was removed, for about five minutes, when the tremors having ceased, another drachm of chloroform was administered. In a few minutes, patient was sleeping quietly. Pupils before widely dilated, now contracted. Slept about one-quarter of an hour, when he awoke. Two drachms more of chloroform were administered, the towel not applied closely to the nose. In ten minutes he fell asleep, and slept the remainder of the night.

13th. 10 A. M. Patient entirely rational; complains only of weakness. Pulse 85, tolerably full; skin comfortable. Ordered nourishing diet. No further treatment necessary.

CASE III. Dr. McCready, Visiting Physician.—Isaac Lewis, aged 30, native of New York, a mason, was admitted October 6, 1851. Habits of the patient have been very intemperate for last eight years, within the last five of which he has had delirium tremens twice. On the 3d inst., he was engaged in a fight, which resulted in some petty face-bruises. When admitted, there was erysipelatous redness and swelling over the whole face above the mouth, to the hair, and backwards to the ears. Tongue slightly furred and tremulous. Pulse 90, not very weak. Ordered *lotio plumbi et opii*, with nourishment.

7th. Redness receding. Stomach irritable. Ordered effervescent draught, under which he improved, and took a little beef-tea. At the evening visit, his tongue and hands were tremulous, and there was some delirium. Ordered two grs. of opium.

8th. Morning visit. Erysipelas nearly cured; pus forming in right eyelid. Did not sleep last night. Delirium more marked. Ordered beef-tea. At evening visit, symptoms had increased in intensity. Ordered grs. iij of opium at 9 P. M., and one gr. every two hours, until sleep is produced.

9th. Morning visit. Took seven grs. of opium last night, but was very wild and disorderly. Had terrifying apparitions. Ordered three grs. of opium, and beef-tea. At evening visit had refused medicine and food, and was very much disturbed by apparitions. Transferred to cells. Ordered three grs. opium, and one gr. every two hours until eight grs. are taken.

10th. Took seven grs. opium last night. Had no sleep. At 10 A. M., put him under the soporific influence of chloroform. To effect this, two and a half ounces were administered. He yielded to its action several times before this quantity had been taken, but would wake up immediately and become riotous. While under its influence, the pupils were strongly contracted, dilating, when he aroused, only to contract again when he yielded to the influence of chloroform. He awoke after five hours' sleep, and took a little beef-tea. His condition little improved. Ordered *tinct. opii* in 40 minim doses, with beer every two hours, until sleep is produced.

11th. He took 60 minims of *tinct. opii*, which effected a long, quiet sleep. He is, this morning, quite rational, and has an appetite. Ordered two ounces (for which he craved) beef-tea, and a pint of beer daily, in addition to the diet of the house.

12th. Much improved. Discontinued opium and brandy, and gave tonic mixture.

14th. Transferred from ward, cured.

CASE IV. Prof. Metcalfe, Visiting Physician; Frederic Elliot, M. D., House Physician.—Mr. Hughes, aged 45, Ireland, a butcher, was admitted Sept. 17, 1850. Patient states that he has been drinking excessively for some time past, and was taken one week ago with dysentery. He has slept none for several nights past.

When admitted, patient was discharging yellowish, bloody stools, and was very restless and uncomfortable. Ordered Cock's diarrhœa mixt. after every passage.

*Sept. 18.* Had a restless night, having slept none at all. Bowels less frequently moved, but vomits occasionally. The hand trembles continually. Ordered Magendie's sol. of morph., gtt. xx, every hour through the day. At night he grew wild, and although the morphia was continued through the night, he slept none at all.

*19th.* Feels very uncomfortable this morning, but pulse is good, and patient is rational. The treatment was continued throughout the day, and at 8 P. M. a large drink of brandy was given, with gtt. xxx of Magendie's sol. of morphia. Afterwards continue the same treatment as before. At 12 P. M. patient showed no inclination, and was raving wildly, after the manner of delirium tremens patients. As it was evident that he must die if sleep could not be procured, chloroform was now administered. At the beginning of the inhalation, the pulse was 130, and he was perspiring moderately. He yielded to its influence very quickly, but the respirations became so slow that he had to be roused from his stupor and made to breathe. This followed every attempt to bring him under its influence, and he was consequently only partially etherized. Some convulsive movements occurred during its administration. He slept only a short time, but the wildness was gone, and at intervals through the night he slept awhile. When under the influence of chloroform, the pupils contracted to a point, and were so immediately when aroused.

*20th.* Patient is worse this morning—being comatose. Treatment was continued through the day, but patient continued to sink, and died at 7 P. M.

*Autopsy seventeen hours after death.*—Intense arachnitis, with serum effused under the arachnoid membrane. Lymph over the surface. Ventricles normal. Some serum at base of brain.

CASE V. Prof. Metcalfe, Visiting Physician; F. Elliot, M. D., House Physician.—Henry Manning, aged 32, of N. Y., a dancing master, was admitted Sept. 20, 1851. He had been drinking excessively for some time past, and had dysentery for three weeks.

When admitted, discharges from bowels were not very frequent, and patient had slept none for several nights past. Was nervous, and has been delirious for three days past, during the night. Pulse regular, and not too frequent. Ordered half an ounce of brandy, with tinct. opii, ʒj, every hour until sleep is produced.

*Sept. 21.* Patient expresses himself as feeling better this morning. Slept about four hours last night, and the dysentery is checked. Continue treatment.

*23d.* Has slept none for last thirty-six hours; was so wild through the past night, that it became necessary to confine him in bed. Treatment has been continued without intermission since last note. At night, patient grew wild,

and the dose of tinct. opii was doubled. This was continued till 1 A. M., when, as he showed no inclination to sleep, chloroform was administered. Pulse, at beginning, 128. Patient furious and sweating freely. When a small quantity had been inhaled, convulsions of the most severe kind came on, causing for a while the suspension of the chloroform. These occurred several times during the inhalation, and generally on the application of fresh chloroform. In about half an hour, the patient was brought fully under its influence. Pulse 120. Otherwise, at the beginning of the inhalation, he slept about two hours, when he awoke, and the chloroform was again administered, with the same results as before. He slept till morning.

23*d.* Felt pretty comfortable through the day, but became wild at night, though the treatment before mentioned was continued only when he was asleep. At 11 P. M., as the patient was unable to sleep, chloroform was again administered. Pulse 90, tolerably strong. During the inhalation he suddenly became furious, and attempted to strike those around him, and soon afterward, convulsions of the kind before named, seized him. Three of these occurred. In about twenty minutes, the full effect was produced, and the patient slept till morning. Pulse about as at the beginning.

25*th.* Patient is improving. He sleeps well, and complains only of debility. Ordered a nourishing diet, and a moderate amount of stimulus.

28*th.* Patient is convalescent.

TARBORO', N. C., Jan. 19, 1857.

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ART. IV.—*Punctured Wound of Abdomen—Protrusion of Intestines, their return obstructed by a Band.* By ANDREW FLEMING, M. D., Resident Physician to the Pennsylvania Hospital.

JOHN McMENAMIN, aged 19, a whitesmith, was brought into the hospital by the police, Sept. 30, at 2 A. M., said to have been stabbed at a ball. When admitted he had a cold skin, feeble pulse, was bleeding slightly, and, from the appearance of his clothing, he had lost a great deal of blood. A wound was found in the lower part of the abdomen, on the right side, beginning at the external abdominal ring, passing outwards nearly parallel to Poupart's ligament, and about three inches in length. Through the opening there protruded a large mass of intestine, with a considerable portion of omentum. In the protruded gut was a transverse incision three-quarters of an inch in length, through which a small quantity of feces was escaping.

The wound in the intestine was united by the Glover suture, and an attempt made to reduce the protrusion, when a band was found holding it firmly (with the intestine bulging out on each side), frustrating all endeavours at reduction. This cord was held aside by a blunt hook, and the intestine and

omentum returned. Hemorrhage having entirely ceased, the wound was united by sutures, and supported by compresses and adhesive strips. The legs were flexed upon the thighs, and the thighs upon the body, and kept in that position by an arrangement of pillows.

External heat was applied and liq. morph. s. ʒij was given, with a small quantity of brandy, and ʒj liq. morph. sulph. given every hour, till morning.

*Sept. 30.* Feels comfortable when lying still; has slept a little, and passed his urine voluntarily; pulse 80, without force; skin warm and dry. Morphia continued every three hours, with beef essence and arrowroot, in small quantity, for diet.

*Oct. 1.* Pulse 140, small and weak; breathing thoracic; great tenderness of abdomen, with tympanitis, and he vomits bilious matter, in small quantity, constantly. The internal administration of morphia was stopped, and tinct. op. ij given by injection, and at the same time a blistered surface produced over the stomach, on which was sprinkled calomel 10 grs., with morphia acet. gr. j. Vomiting continued, and he died at 10 P. M.

*Post-mortem examination 14 hours after death.*—Body muscular; rigor mortis well pronounced; no external wound, except the one mentioned above. The muscles around the seat of injury were dissected back, and a small quantity of blood was found between them and the peritoneum. The wound in the peritoneum commenced at the internal abdominal ring, was two inches in length, and nearly in the middle of it was the band which so embarrassed the return of the intestines.

This was found to be the remains of the umbilical artery. In the abdominal cavity was a large quantity of yellow lymph, floating about, and the intestines were glued together by the same material. The sutures, uniting the incision in the intestines, were so completely enveloped in lymph, that they were with difficulty found. No blood was found in the abdomen, and the lungs, heart, liver, &c., were in a normal condition.

Reflecting upon the injury to which the parts were exposed, it would seem almost impossible for a knife to be driven in at that point without dividing the umbilical ligament—a dense, resisting cord—while the epigastric artery alongside was completely severed.

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ART. V.—*Gastrotomy; Successful Extirpation of Fibro-Cartilaginous Tumour.* By JOHN B. HAYS, M. D., of West Ely, Mo.

THE subject of this case (a coloured servant woman, about 42 years of age, and the property of Mr. Z. Johnson, of Ralls County, Mo.) had been diseased between four and five years. The earliest symptoms were pain of an intense and bearing down character in the pelvic region, recurring

at intervals of from one to four weeks, and continuing several days with little mitigation, indigestion, inability to make active exertion, and gradual wasting of the flesh, with diminution of physical strength. The tumour was early detected in the pelvis, and gradually rose above the brim until the superior portion of it occupied the left epigastric region.

When first seen by me in the beginning of May, 1851, I found the patient quite attenuated and feeble, suffering much from the most excruciating pain of the bearing down and alternate character, very similar to the ordinary tonic pain in labour. The external appearance and figure of the patient was very much like a pregnant woman, thin in flesh, at her full time.

The tumour occupied the anterior portion of the abdominal cavity, having pushed the bowels upwards and backwards, so that its form could be very distinctly ascertained by an examination through the abdominal parietes.

On examination per vaginam, it was ascertained that a large tumour occupied the whole pelvic cavity, presenting a firm surface, of an oval figure, about the size of the head of an ordinary child at the completion of utero-gestation. The tumour was slightly movable in the pelvis, but always gave considerable pain when moved. The os tincæ could not be detected, nor its position ascertained. The catamenia had been quite regular, but always of an unhealthy character, the discharge being dark, and presenting the appearance of blood and mucus mixed in nearly equal proportions. The health of the patient was always worse during her menstrual flux, and the pain more distressing than at any other time.

Several respectable and experienced physicians had been consulted, all of whom concurred in the opinion that an operation was the only means by which the patient could be restored to health, consequently it was determined to give the sufferer the last chance for life and health, by extirpating the tumour. In view of this determination, the patient was put under treatment preparatory to the operation, she and her master having been frequently advised of the severity, the immediate danger, and ultimate uncertainty of the operation. They, however, with all the facts before them, urged that it should be performed. The patient, after taking time to make up her mind, was especially solicitous for it. She waited reluctantly until her system could be put into a favourable condition.

The necessary preliminaries having been arranged, the operation was performed the 12th day of June, 1851, assisted by Drs. A. J. McKelway, of West Ely, H. Meredith, of Hannibal, and Mr. Lott, as follows: I made an incision immediately below the umbilicus in the linea alba, two and a half inches in length, through the abdominal parietes, to the tumour, then introduced a gum elastic male catheter of common size and extended it in every direction between the walls of the abdomen and the tumour, by which means I ascertained that no adhesions existed between the walls and the tumour.

The incision was then extended to within one inch of the os pubis, the incision being now five inches in length, the situation, form, and size of the tumour could be clearly ascertained. The information thus obtained showed that the incision was insufficient to admit of the extraction of the tumour, consequently it was extended upwards three inches in a curved line, leaving the umbilicus on the left side, making the incision eight inches in length. I then introduced my fingers on each side of the tumour, and with much difficulty to myself, and pain to the patient, raised the tumour from its bed, and extracted it through the incision.

This part of the operation was rendered difficult by the length of the tumour, the formation of its superior portion, which consisted of three distinct lobes, attached to the main body of the tumour by as many distinct pedicles, and the incompressibility of the tumour.

The tumour being extracted and elevated, showed its attachment to be to the posterior portion of the fundus uteri, by a pedicle one inch in length and one and a half inches in diameter. There were extensive adhesions between the anterior surface of the tumour and omentum, which were dissected apart and the bleeding vessels secured. The tumour was then elevated, and the pedicle secured by a large ligature, and the tumour removed before the pedicle could be transfixed and secured. This procedure was absolutely necessary on account of the shortness of the pedicle, its location being low in the pelvis and the unavoidable protrusion of the bowels.

After the tumour was removed the pedicle was conveniently transfixed and secured by a strong double ligature, and the vessels made doubly secure by reapplying a strong ligature around the entire pedicle below the point where the stump was transfixed.

The incision was then closed by a neat interrupted suture, and secured by adhesive strips, compress, and bandage. (This part of the operation was performed by my associates, Drs. McKelway and Meredith.)

The operation occupied forty-five minutes, and was borne with unprecedented fortitude.

The time necessary to make the exploration, the extensive adhesions existing between the tumour and omentum, the large size of the tumour, and the difficulty in getting at the pedicle to secure it, will account for the protraction of the operation.

After the patient was put to bed, she soon became comfortable under the influence of a full dose of laudanum, and an occasional portion of brandy, which procured quiet, refreshing sleep, and a healthy reaction.

13<sup>th</sup>. The patient rested quietly; asked for food; complained occasionally of pain in the bowels and debility; laudanum was given occasionally in decided doses, the urine drawn off twice by introducing catheter; gruel was given frequently in small quantities.

14<sup>th</sup>. The patient had a comfortable night; slept quietly; complains of

acidity of stomach, and hiccough; administered carb. soda in small doses, at intervals of 2 hours; this corrected the acidity, and the hiccough stopped; administered Epsom salts, which acted on the bowels during the evening; evacuated the bladder by the catheter; administered laudanum at bedtime, which procured a comfortable night's rest.

15th, 9 o'clock A. M. Pulse 130, regular, soft, volume not quite so good as on the 14th; action of the heart rather laboured; skin moist; tongue looks well; salts administered during the night which procured an evacuation of the bowels; urine passed naturally.

16th. Bowels acted at 8 A. M.; complains of slight pain of rectum; feeble; took brandy and water; revived; bowels acted at 10; brandy and water procured quiet and refreshing sleep; pulse 135; action of the heart still rather laboured; discharge from wound rather offensive, thin, and bloody.

17th. Comfortable sleep and rest during last night; pulse regular, soft, 110; tongue dryer than usual; no thirst; skin warm and moist; appetite for food; strong desire to smoke (usual habit); expression of countenance cheerful and pleasant; takes notice of passing events, as one in health; considerable discharge, thick and bloody; abdomen slightly tumid; dressings removed and fresh dressing applied; urine discharged in the natural way.

18th. Rested and slept comfortably during last night; two voluntary evacuations from the bowels during last night; urine evacuated naturally; tongue clean; appetite good; skin warm and moist; pulse regular, 120, volume good; countenance cheerful and expressive; copious discharge from incision, thick and bloody, quite offensive; less distension than existed yesterday; bears pressure.

19th. 12 o'clock. Patient rested and slept quietly since last visit; tongue has brown coat; pulse and skin same as yesterday; abdomen considerably reduced in size, and flaccid; discharge from incision copious, changed in character, healthy pus is now being discharged; appetite still good; cheerful and hopeful; slight acidity of stomach; 3ss soda given to correct acidity; 3 grs. calomel combined with 6 grs. Dover's powder administered at bedtime.

20th, 21st, 22d, and 23d. During these four days, brown coat on the tongue; bitter taste; appetite not so good; more languid, complains of weakness; pulse 120, regular, and soft; skin natural, less moist than previously; wound not disposed to heal, edges flabby and gaping; no granulations. Administered divided doses of calomel; allowed a more generous diet (light chicken and squirrel soup, panada with a liberal portion of brandy in it); stimulated the wound with stimulating cerate; applied new adhesive strips, drawing the wound in close contact.

24th. Suppuration and granulations improved, otherwise as on the 23d; alterative doses of calomel continued; 1 gr. of quinine administered every four hours; the action of the bowels favourable; urine discharged in the natural way.

25th. Patient much improved; tongue moist and cleaning; taste improved; pulse 100, soft and regular; skin warm and moist; copious bilious discharges from the bowels; wound more sensitive; healthy granulations; union evidently taking place; quinine continued; liberal allowance of brandy in panada, and pleasant soup.

26th. General condition as yesterday, slight improvement.

27th. Patient desired more substantial food; bowels act without the aid of purgative medicine.

28th. Patient cheerful; general health improved; appetite craving; regular evacuations from bowels and bladder without medicine; strength improved; wound completely united except inferior angle, which is kept open by the ligatures, which are yet firm; considerable discharge of healthy pus. Treatment as before.

29th and 30th. Still improving; one ligature came out undressing. Treatment same.

July 1 and 2. Still improving; bowels rather torpid, relieved by Epsom salts; the second ligature came out on dressing; pulse regular and soft, 90 to 95; tongue clean, no marks of irritation. The patient was now taken in the charge of her family, being able to walk about her room; her health and strength gradually improved.

The ligatures all came away by the 10th of this month (July), and the incision closed in a few days.

The tumour is  $23\frac{1}{4}$  inches in its large, and 16 inches in its small circumference, weighing  $3\frac{1}{4}$  pounds.

*Remarks.*—It is remarkable that the general health should have been so little disturbed by an operation so extensive, and involving the disturbance of so many important organs.

By an examination of the history of this case, it will be perceived that the patient experienced but slight pain, and but little disturbance of the digestive organs at any time after the operation was performed. She often said, during her convalescence, that she did not suffer as much during any day, as she had usually suffered every day before the operation was performed.

A report of this case has been delayed for the purpose of giving ample time to test the beneficial results of the operation, and the lapse of seventeen months has proved its entire success, the subject having enjoyed uninterrupted health during that period, and at this time being able to perform all the kitchen service of an ordinary family situated in the country.

ART. VI.—*Notice of Cholera which prevailed as an Epidemic on board the U. S. Ship Cyane, in the Summer of 1855.* By WM. G. HAY, Assistant Surgeon, U. S. N.

WE arrived in Havana from a cruise "down the Gulf" on the 24th of July. Many of the crew, consisting of nearly two hundred men, had suffered considerably from diarrhoea; two or three individuals had experienced repeated attacks of violent colic, and paronychia had been unusually prevalent.

On the night of the 27th of July, the first case of cholera was reported; on the morning of the 28th we proceeded to sea; on that day four more occurred, and by the evening of the 31st there were twenty-five or thirty cases on the list. The attack was usually sudden; in not more than one or two instances were there any premonitory symptoms of sufficient duration to render them appreciable. Generally, the patient was attacked with vomiting and purging shortly after a meal, attended with severe griping in the stomach and bowels, whilst the spasmodic contraction of the muscles of the neck, body, and extremities produced the most excruciating agony.

The cramps were at times confined to the muscles of the neck and thorax; at others, to those of the inferior extremities, and in one instance to only the extensors of the great toes. Singultus was occasionally extremely annoying.

When the stomach and bowels were evacuated, if soon after a meal, a temporary relief was afforded; but within fifteen to thirty minutes after, the paroxysms recurred with increased force and frequency. There was violent retching, sometimes vomiting of a glairy mucous and bilious matter; the discharges from the bowels were copious, watery, and with mucous flocculi floating in the liquid; occasionally they resembled meal gruel, and were ejected with considerable force. The surface of the body and the extremities were cold and covered with perspiration, the pulse quick and feeble, and towards the termination of the paroxysms the thirst was excessive. The cramps recurred with various degrees of force, and their duration varied in different individuals. Scarcely five minutes would intervene in some instances, in others, thirty, forty, or sixty minutes, with a duration of five, ten, or fifteen minutes. The symptoms varied but slightly in the majority of cases; in some, however, the patients suffered from violent colic with obstinate constipation, which was with difficulty overcome by the most powerful cathartics and the employment of other remedial measures. In some, vomiting never occurred except when induced by emetics; in others, the cramps would be the only symptom which manifested itself, and which was frequently the most difficult to control.

After the disease had yielded to treatment, the patient was left in a feeble condition, appearing haggard and emaciated. Convalescence was usually quite rapid. Within eight or ten days from the commencement of the attack, with

few exceptions, the patient was sufficiently restored to resume his duties; but the least imprudence in diet was almost surely followed by a relapse. The disease began materially to abate about the 7th of August; cases occasionally occurred until the 20th, when the epidemic entirely ceased.

Among the causes which produced this complaint, the following may be adduced:—

For eight or ten weeks prior to our arrival in port the heat had been exceedingly oppressive, and the atmosphere close and moist; the thermometer had ranged between 80° and 87° in the shade on deck whilst at sea, but below, on the berth-deck, where most of the men slept, the thermometer frequently stood at 90°. We had experienced a constant succession of squalls with rain, so that the decks were never thoroughly dry for days together. Ventilation was necessarily imperfect on the berth-deck, and the galley being on this deck increased the difficulty. Many of the crew were debilitated by these circumstances and the exposure they had undergone; upon our arrival in port some indulged too freely in tropical fruits; others were imprudent in diet to which they were not accustomed. But the origin of by far the greater number of cases could not be traced to any imprudence in diet whatever. Change of diet doubtless had its influence, for whilst in port fresh provisions were served to the men in lieu of salt rations, and such changes are almost invariably followed by slight disorder of the digestive functions. The greater number and the most violent cases occurred, however, after we had been four days at sea, and when the men had resumed their accustomed mode of life.

The treatment varied so as to meet the exigencies of each case, and the usual remedies were employed. Emetics and cathartics were exhibited when there was reason to apprehend the stomach or bowels contained any crude or irritating matter. Excessive vomiting and purging were readily relieved by opiates, sinapisms, &c. The cramps were more unmanageable and caused the greatest distress. Among other remedies, the inhalation of chloroform was resorted to with the happiest results; the patient being permitted to inhale it at intervals upon the commencement of a paroxysm, though it was never carried to the extent of producing complete anæsthesia. A mixture of the tincture of opium and camphor, with diluted nitric acid, was a remedy much relied on, and warm baths, stimulating frictions, sinapisms, &c., were freely used; in the meantime the patient's diet was restricted to rice, arrowroot, or tapioca.

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ART. VII.—*Cases of Hysteria.* By WM. WOOD, M. D., of East Windsor Hill, Conn.

CASE I.—*September 24, 1851.* I was called in great haste to see a Mr. L., aged about 55, some three miles distant. The messenger informed me

that he was "sneezing himself to death," and he thought that he would be dead before I could get there. In fifteen minutes I was by his side, and found that the neighbours had already procured another physician, with his pupil, besides a houseful of friends. Dr. ——— informed me that, on his arrival, Mr. L. was breathless and pulseless, and that his pupil had kept up artificial respiration several minutes before pulsation returned. As I entered the door, the anxious wife exclaimed, "Oh, Doctor! can you save my husband? he is now just a-going to have another turn." From what I gathered from the messenger, and what I saw on my arrival, I determined to administer immediately large doses of antispasmodics. I accordingly gave him at one dose, R.—Tinct. valerian. ammoniatæ ʒj; tinct. camphoræ gtt. xx; tinct. opii gtt. xl. The effect was very marked, the paroxysms being entirely arrested. He remained quiet and easy about one hour, when, upon a return of the former symptoms, I again administered the above prescription with similar effect. I had occasion to give it but once more before the patient was entirely free from any trouble, except headache and some thirst, which continued for a few days.

Not knowing anything of the previous history of my patient, I catechized him particularly regarding his health, occupation, habits, &c. &c., by which I learned that he had been an engraver for several years in Albany, but of late had given up the business, and bought a small farm, as advised by his physician, under the belief that applying himself so closely to his trade was injuring his health. While residing at Albany, he was afflicted with a slight bronchial difficulty, but had experienced no trouble from it since leaving the city, unless he went near salt water, when it caused some hoarseness. His health is tolerably good; eats well; sleeps well; and generally feels well. He never had anything that bore the least resemblance to this attack before. The day on which this occurred, Mr. L. felt as well as usual, and was engaged in some light work about his farm. Toward evening, he went to his barn to milk, and, while milking, suddenly commenced sneezing, and could not stop. He started to go into the house, but was obliged to leave his milk pail, and catch hold of one of the studs of the barn to keep from falling, and was found in this condition by his hired man, who helped him into the house; this is the last he remembers until some time after I arrived. The sneezing continued until he was breathless, accompanied by severe spasms.

Nov. 19, 1856. A little more than five years after the first attack, I was summoned in great haste to see Mr. L. again, with the message that he was "coughing himself to death." I was there as soon as possible, but found him coughing constantly, and in so violent convulsions, that I was unable to administer anything, either by mouth or rectum. It took three men to keep him on the bed, and to prevent his injuring himself by his spasmodic movements. He soon became very purple, rigid, and breathless. I placed my ear over his heart, but found all was silent there. The muscles all over him were as tense as fiddle-strings, and his jaws were firmly closed. I then re-

sorted to Dr. Marshall Hall's method for the treatment of asphyxia, so far as practicable, as laid down in the No. of the *American Journal of the Medical Sciences* for July last. The rigidity soon passed away, and he expressed himself as feeling comfortable, with the exception of very great soreness externally. He remained quiet about one hour, and then commenced coughing again. I immediately gave him the same dose as in his previous attack. It did not fully arrest the spasms, but made them comparatively light. There were two more returns of coughing, but the paroxysms were entirely checked by increasing the above dose about one-third.

The next day I found him with pulse 90; tongue coated white; pain on touching him very acute, and with a congested appearance about the neck and face, and considerable fulness of the face. He was perfectly rational, and seemed desirous to tell me just how he felt before the paroxysm. He said, "Doctor, I never felt better in my life than I did before I commenced coughing. I had been sitting in the house most of the day, reading and singing some of the time, but about supper time I began to feel a little bad, and I was afraid that I was going to have a poor spell. I made up my mind that I would keep as composed as possible, and try to remember all my feelings, so as to tell you. I first felt a pricking sensation in my left side, in the region of my kidney, similar to what I feel in my fingers when I come to the fire after being in the cold. After a few minutes it seemed to extend up my ribs, until it reached my lungs, when it produced a sensation there, similar to what I feel when I strike my elbow against a hard substance, and hit the nerve. I then began to cough, and, in spite of all my efforts to the contrary, I kept coughing, and could not get time to take in a breath; it was all expiration, and this continued until I became unconscious."

This I suppose to be a case of hysteria, and if so, it is peculiar in several respects. 1st. Hysteria is uncommon in men. Gregory says: "Hysteria is scarcely ever observed except in females." "Cases of hysteria have been recorded in *males*, but upon no very good authority; the complaint is peculiar to the female sex." Mackintosh says: "It is a disease almost exclusively affecting females, but males are not entirely exempt, but the attacks come on all of them under the influence of *depressing passions*." 2. Hysteria is uncommon at Mr. L.'s period of life. Watson says: "Etymologically to apply the term hysteria to males would be absurd, but it does present itself, though rarely, in *young men*." 3d. Hysterical sneezing very rarely occurs, and I am unable to find an instance of it in the male. R. B. Todd, Phys. to King's Col. Hosp., says: "*Women* are sometimes attacked with hysterical fits of sneezing; of my own knowledge, I am aware of but one instance of this." Sir Benjamin Brodie in his extensive practice relates only two cases of this kind, and they occurred in *females*.

There was in this case no *exciting or depressing* cause that I could learn, neither could I trace the proximate cause of his attacks to any disturbance.

CASE II.—*August 24, 1856.* I was summoned in great haste to see two sisters, one aged 20 and the other 18, who were very suddenly and alarmingly taken sick. Before reaching the house I could hear them labouring for breath. I found them in violent convulsions, with great rigidity of the muscles. In taking hold of their arms, I could compare the rigidity to nothing but to that of a bar of iron. Their breathing was short, hurried, and loud; about 130 expirations to the minute; pulse 80 to 90; constant retching. One vomited very freely, the other not at all, and it is a singular fact that from a child it had been impossible to make her vomit. The first words that each of them spoke, were, “rub me, rub me,” although they were in different rooms. As soon as practicable I gave each of them a pill of the following: *R.*—Sulph. morph. gr. iv; gum camph. ℥ij; ex. conii. q. s.—*Ft. pil. xii.* One of these pills was given whenever there was an approach of a paroxysm, and in the mean while I directed them to take mucilaginous drinks very freely. They made a good recovery, but complained of excessive soreness for several days.

The youngest was affected the last, and after the abatement of the spasms, related the following: “Both of us went to meeting to-day, and felt as well as usual; drank tea about 7 o’clock—good appetite—eat biscuit, cake, new cheese, and whortleberry pie. At about half past seven I heard my sister make a noise in the adjoining room, and started to go to her, but before reaching the door my limbs began to tremble, and felt so stiff that I was unable to move them. I should have fallen had I not been caught by a friend who was by my side. I thought I was dying, and attempted to speak, but could not, for it seemed to me as though a girth was buckled so tight across my chest that I could neither speak nor breathe. Then commenced the loud and difficult breathing, accompanied with spasms, nausea, headache, thirst, and great burning in my stomach.”

The older sister had been taken a few minutes before with nausea and vomiting, and then followed the symptoms as described above, only much more violent. She described the heat in her stomach to a “ball of fire burning through.” They both described the sensations when the convulsions were passing off as the most distressing of all, when they cried out, “rub me, rub me.” They said “they felt *all over* like a limb that had been asleep and was waking up.”

My first impression on seeing them was that it was hysteria, but upon hearing the whole story, it appeared as though they must have taken some violent poison. Although Sydenham has truly observed, “that the shapes of Proteus, or the colours of the chameleon are not more numerous and changeable than the variation of hysteric complaints,” yet, it seemed to me impossible for hysteria to assume the whole category of symptoms attendant upon poisoning by nux vomica. The manner of attacks, both taken at the same time without seeing each other, inability to move, the regular natural pulse, the great rigidity of the muscles, the burning heat in the stomach, the constriction of the chest, the pricking and tingling sensation all over, are symptoms

produced by *nux vomica*; the other symptoms ordinarily occur in hysteria, as well as in violent poisoning. I questioned them to know if they could have taken anything poisonous, but they were positive that they had not. I have no doubt but that they told the truth, for both of them are excellent young ladies, members of the church, and are very pleasantly situated to enjoy life. I then examined the pie, but could find no poisonous berries in it, and I know of no berry in this section that is so violent a poison. Could it have been the cheese? Cheese is as violent and fatal a poison to some as *nux vomica*. They have, however, always eaten cheese with impunity, and furthermore, there were eleven at the table, and all eat of the cheese and pie, and only two were taken sick, and they were as robust and healthy as any member of the family, and more so then, for every member except these two had been sick with dysentery within two months previous. What caused the attack?

[This second case appears to us to have been one of hysteria brought on by indigestion—*embarras gastrique*.—ED.]

ART. VIII.—*Three Cases of Ovarian Tumour successfully treated with Iodine.*

By B. ROEMER, M. D., of Otter Bridge, Va.

CASE I.—*Oct. 5, 1856.* Was called to see a negro woman, æt. 50 years, fleshy, and of dark brown colour. Had two children, the last some fifteen years ago. Labours then light; menstruated regularly up to June, 1856, when morning sickness, and afterwards enlarged mammæ and abdomen supervened. Believed herself with child, and thought she felt the fœtus through the abdominal walls near the left groin. Experienced at times a dull pain and weight in the iliac region. Catamenia ushered in with increased pain yesterday. Tongue slightly furred; pulse rather hard, quick—95 per minute. Bowels irregular, costive when examined.

*Per Vaginam.*—Os uteri dilated in diameter a quarter of an inch; diagnosed a hypertrophy in the iliac fossa; the uterus rested heavy upon the index finger, and is drawn sideways towards the rectum to the opposite of the enlargement in the fossa. The examination per rectum et vaginam revealed the true state of the disease, a fluctuating tumour being felt between the respective fingers. Further investigation per rectum proved it to be a unilocular tumour of the left ovary.

*Treatment.*—Bowels evacuated before entering upon examination. Ordered a tub of steaming water, over which I directed her to sit so as to allow the vapour to enter the vagina. The length of time was suited to her convenience. This proved itself very beneficial in the course of a few hours, removing the tenderness, and consequently allaying in a great measure the pain in the iliac region. Administered: R.—Iod. ʒj; potass. iod. ʒij; aquæ dest. fʒvj. Cochl. med. quater indies. At the same time tr. iod. simp. fʒj was painted over

the abdomen, between the pubes and umbilicus, to the left towards the groin, twice daily.

7th. Tumour harder to the touch; uterus more concentric with its normal axis; pain diminished; bowels moved twice yesterday; catamenia still present; mammæ rather more lobular; same treatment continued.

10th. Slept last night well, this not having been the case for several months; otherwise no marked improvement; catamenia ceased since the night of the 9th; treatment continued.

Being engaged otherwise in my profession, I heard from the patient daily through her master. She was up on the 12th, and began her light services on the 15th. Saw her again on the 22d, when the tumour had disappeared, and her health otherwise much improved.

CASE II.—*Jan.* 1857. Mary, a negro woman (æt. 55 years), had two children when quite young (ages and dates are always important when received from such sources); the last delivered with forceps. Catamenia ceased for a number of years (supposed from 5 to 7 years). *Has* been of loose habits, manu se stuprabit bis terque indies marito sur muneris non sufficiente. Complained for some time of “lumps” in the lower part of the abdomen, which, however, were left unnoticed, as they caused no inconvenience save a sense of weight. Remembers to have suffered pains a year ago, probably the commencement of the present disease. Since a few months the abdomen enlarged, as also the mammæ, and an areola was well marked around the nipple. Negro women caused her to believe herself with child, thus delaying medical aid. Was called in consequence of augmented pain in the iliac regions. Found her in bed. Examination was satisfactory to evidence the existence of multilocular cysts in the ovaries. Septa perceptible. Fluctuation nearly established. Uterus receded, and the os expanded. The surface of the tumour irregular, and towards the median line what might be termed granular. No adhesions perceptible. Umbilicus prominent. Measurement of the abdomen omitted. The peculiar expression of the countenance described by J. B. Brown, M. D., was particularly noticed. Bowels irregular; tongue clean and reddish; pulse 90, soft and regular. There existed for some time œdema of the lower extremities.

8th. *Treatment.*—The tr. iod. comp. was administered in tablespoonful doses, four times daily, and the tr. iod. simp. was painted over the proper regions twice daily. The bowels were moved with sulphate of magnesia, with the view of removing the additional pressure of the feces upon the sphincter muscle. On the evening visit the bladder was found empty.

9th, *evening.* Had a restless night; gave morph. sulph., one fourth of a grain hor. somn., and continued his former treatment.

10th. Slept six hours; pains in the umbilical and iliac regions lessened; tumour moved an inch from its former position (iliac r.) towards the umbilicus, which may have caused the regular discharge of urine.

12th. Continues to improve; cysts less prominent; septa still perceptible; the lower part of the abdomen is fuller (pressure upon the intestines being diminished); uterus lower; former treatment continued, with the addition of a gentle purgative.

15th. Desires to get up; not granted; pains last night stronger; but since then very weak; œdema subsided; tumour returned to its former place, and collapsing; uterus as before; os still expanded.

18th. Sitting up; found her much improved, the tumour being now of only one-fourth of its former size; os uteri contracting; directed the comp. tr. of iodine to be given twice daily.

28th. Found the patient about; ovaries of normal size; there is still a tenderness around this body.

CASE III.—*Jan. 2, 1856.* Mrs. O. is the mother of five children. She aborted with her first child, in the fifth month of gestation. Her appearance is healthy. Mr. O. applied to me in the beginning of December, 1855, to see his wife, who, five months after her confinement, believed herself again a mother, contrary to her usual interval of repose. I found, upon examination, a well-defined unilocular tumour of the left ovary, already in the pelvic cavity, and causing the usual symptoms of tenderness in that region. The breasts were also enlarged. I placed her under the same treatment as just enumerated, and after five months, is now in her usual health. The catamenia never failed to set in at the regular terms, which is unusual in the character of this disease.

I hope this simple plan of treatment will be found as efficient in the hands of my fellow-labourers as it proved itself to me. Although recommended by high authority, the resolution and obliteration of ovarian tumours was and is now questioned. Were it my intention to write a monograph on this subject, a number of cases could be quoted, which, treated by eminent practitioners, both of this and our mother country, were effectually treated without the aid of surgery.

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ART. IX.—*Experiments made to determine the Protective Power of Belladonna in Scarlatina.* By J. CHESTON MORRIS, M. D., of Philadelphia.

NUMEROUS experiments have been made on the protective properties of belladonna against scarlatina, and the general conclusion of the profession from them has been unfavourable to the so-called protection. I may remark, in passing, that it would involve no sacrifice of principle on our part to explain *how* belladonnism might protect from scarlatina, *were such the case*—second attacks of scarlatina being almost as rare as second attacks of small-pox; and it being conceivable that an appropriate agent might cause a state

of system similar to that produced by the scarlatinous infection; we know nothing of the so-called miasms. At all events, the efforts made by the homœopaths to extend their influence, have caused a popular prejudice to a certain degree in favour of the administration of belladonna.

A favourable opportunity occurring, I determined to try an experiment as impartial as possible, and publish the results, whatever they might be. The Foster Home is an institution for the reception of half orphans, and is situated in the building known as the Preston Retreat, in the northwestern part of the city.

The number of children in the house, on December 25, 1856, who were liable to scarlatina, was as follows:—

Had sickened with it, up to February 20th	.	.	.	35
Marked on certificates of admission as not having had it	.	.	.	14
				<hr/>
In all	.	.	.	49
Of these, there were taken sick December 27 and 28	.	.	.	6
				<hr/>
Leaving as subjects for experiment	.	.	.	43
				<hr/>
		Escaped.	Taken.	Whole No.
Of the 43—Took no belladonna	.	...	...	24
Escaped scarlatina	.	6	...	...
Had scarlatina regularly	.	...	18	...
Of the 43—Took belladonna	.	...	...	19
Escaped scarlatina	.	8	...	...
Had scarlatina regularly	.	...	11	...
Which, with those taken at first	.	...	6	6
		<hr/>	<hr/>	<hr/>
Makes, as aboves	.	14	35	49

The administration of the belladonna was commenced on December 29th, and has been continued to the present time. The mode adopted was that given by Dr. Meigs, in his work on *Diseases of Children*, as quoted from Hufeland, viz., Ext. belladonnæ gr. ij; Aquæ destillatæ f3ss; Alcohol f3j. One drop for each year of the child's age, to be given morning and evening. The effects produced on the children were generally slight; a little dryness and redness of the fauces, and dilatation of the pupil, with occasionally a little headache, being the extent of them, except in one case, not counted above, a girl who had had scarlatina severely some years previously, and to whom it was administered under the erroneous impression that she had not had it. She had a well-marked efflorescence, with slight fever, delirium, and sorethroat; but had not scarlet fever.

Of the eleven who sickened with scarlatina while using the belladonna—  
2 sickened on the 6th day of administration.

1	"	"	8th	"	"
1	"	"	10th	"	"
1	"	"	15th	"	"
2	"	"	17th	"	"
1	"	"	40th	"	"
1	"	"	41st	"	"
1	"	"	42d	"	"

The last three cases were very mild; the others did not differ in any way from the cases occurring simultaneously in the other children. The last case among the twenty-four who took no belladonna occurred on January 12; while, as above, the belladonna cases occurred up to February 9, forty-four days after the appearance of the disease. The sick children were carefully isolated; the others were mingled without reference to their taking or not taking the medicine, and were in all respects equally exposed. If we reduce the above figures to a percentage for the sake of comparison, we find 75 per cent. of the unprotected children taken, while only 53 per cent. of those under the belladonna were affected. The difference in the period of incubation is also very striking. Now how is this to be explained? The idea of any specific protection against the disease would be at once overthrown, if the experiments of Bayle, of Hufeland, &c., had not satisfied us on that point.

I think the explanation is, that the belladonna acted by preventing to some extent the absorption of the scarlatinous miasm. We know that the process of absorption depends to a great extent on the movement of the blood in the bloodvessels—the slower this movement, and the fuller the bloodvessels, the less the absorption; hence, the effect of narcotics would be to diminish absorption. Thus, too, the production of intoxication in cases of poisoned wounds prevents the absorption of the poison; and an old domestic prophylactic against marsh miasm was the taking a morning dram, while we know that absorption of miasmata takes place more readily when the stomach is empty than after a full meal. Why? Because, during digestion, the pulse becomes fuller and more frequent.

If this explanation be the correct one, any other narcotic should produce quite as effectual a prophylaxis as belladonna. The next question is, should belladonna be given generally to all who are exposed to the influence of scarlatina, and who have not had the disease? From the small numbers observed, I should hesitate to answer definitely yes or no; it is not such a trifle as it has been represented, to maintain even a slight narcotic impression for a month or six weeks; and at every fresh exposure, the patient must go through a fresh course of the medicine. Yet where an epidemic is very malignant, or where a hereditary fatality attends the disease in a family, I should recommend the administration as tending to diminish the risk of contracting the disease.

PHILADELPHIA, *March 4, 1857.*

## FISKE FUND PRIZE ESSAY.

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ART. X.—*On the Effects of Climate on Tuberculous Disease.* By EDWIN LEE, M. R. C. S. London. The Dissertation to which the Fiske Fund Prize was awarded, June 6, 1855.<sup>1</sup> (Published by request of the Rhode Island Medical Society.)

1. *Preliminary Remarks.*—A subject of greater importance than that of the effect of climate on tuberculous disease could scarcely have been chosen from the whole range of medical science, for the consideration of competitors for the prize offered by the trustees of the Fiske Fund—both on account of the generally fatal termination of tuberculous diseases, when seated in a vital organ, and the inefficiency of medical treatment, as well as of the prevailing deficiency of knowledge among the profession respecting the action of climate, and of its capability, when employed with discrimination, and before disease has advanced too far, of frequently arresting its progress, and sometimes of effecting a cure. It is true we possess many valuable monographs of the climates of particular localities and districts, and of their effects upon diseased conditions of the system, but I am not aware that there exists any work, either in the English, French, or German languages, treating of the remedial action of climate in its more general bearings. I propose, therefore, upon the present occasion, to consider the mode in which climate acts most beneficially in preventing the occurrence of tuberculous disease in the lungs, and removing it where already existing; the observations which I have to offer upon this point being equally applicable to tuberculous affections of other parts. In order, however, to enable us to form a just estimate of the *modus operandi* of this remedial agent in cases of tubercles of the lungs, it will be necessary to take a brief survey of the opinions which have been expressed by various authors respecting the nature of the disease, and of the causes which most frequently produce it; for it is only by having correct ideas of its pathology, and by endeavouring to neutralize the influence of its predisposing and exciting causes, that we shall be likely to arrive at more satisfactory

<sup>1</sup> The Trustees of the Fiske Fund, at the annual meeting of the Rhode Island Medical Society, held at Providence, June 6, 1855, announced that they had awarded to the author of the dissertation bearing the motto—

*"In longis morbis solum mutare."*—HIPPOCRATES APHORISM.

*"In the cure of almost every disease the removal of the producing cause should be the primary object."*—ABERNETHY'S PHYSIOLOGICAL AND MEDICAL ESSAYS.

The premium of one hundred dollars, by them offered for the best dissertation on the following subject, viz: "*The Effects of Climate on Tuberculous Diseases.*"

Upon breaking the seal of the accompanying packet, they ascertained the author to be Mr. Edwin Lee, Member of the Royal College of Surgeons, of London, &c. &c.

JOSEPH MAURAN, M. D., Providence,

ARIEL BALLOU, M. D., Woonsocket,

HIRAM CLEVELAND, M. D., North Providence.

*Trustees.*

J. AUG. ARNOLD, M. D., Providence,

*Secretary of the Fiske Fund Trustees.*

results than have been hitherto attained, under a system of purely pharmaceutical and often empirical treatment—which, however useful in affording relief for a longer or shorter period, has tended but little, if at all, to diminish the amount of mortality occasioned by the prevalence of pulmonary consumption in most parts of the civilized world.

The curability of consumption can no longer be reasonably questioned; the fact having been verified in numerous instances of persons who, after having presented all the general and local indications of its existence in various stages of structural lesion, have recovered—living in the enjoyment of tolerable health until a more or less advanced age, when on their succumbing under some other disease, the examination, *post-mortem*, has revealed the traces of the former malady. Laennec remarked this occurrence on several occasions. MM. Ferrus and Cruveilhier state from the result of their observations upon the bodies of old men and women, who died at the large hospitals, Salpêtrière and Bicêtre, that it is not uncommon to find excavations and other consequences of tuberculous disease which had existed at a former period. More recently, M. Beau stated that 157 out of 160 women who died in his wards in the Salpêtrière had cicatrices in the summit of one or other of the lungs, which he considered to be the remains of tubercular disease; most frequently the summits of both lungs were affected. M. Prus likewise found, on examining the bodies of old people, in a large proportion of them traces of former tuberculization of the lungs; in some cases the tubercles had disappeared, leaving cavities lined with a membrane of new formation, and communicating with the bronchia; in other cases there were fibrous or cartilaginous cicatrices; in others, again, the tubercles sometimes encysted, at other times not, were infiltrated with a large amount of chalky, calcareous, or ossiform substance.<sup>1</sup>

More general observation has verified of late years the frequency of these cases; and if recoveries from pulmonary phthisis have not been so numerous as they might have been, it is because the right means of effecting cures have rarely been adopted. In Great Britain more especially, as also in the United States, practitioners, unlike those of most European countries, are accustomed to trust almost exclusively to pharmaceutical agents in the treatment of chronic diseases, but seldom endeavouring to rectify the anomalous conditions of the system, upon which depend morbid local manifestations, by the employment of hygienic and medical means, which, by effecting favourable modifications in the constitution of patients, tend to procure permanent cures instead of a temporary alleviation of suffering or a transient amelioration of their state. “To occupy one’s self in treating merely the manifestations of a diathesis,” says a distinguished French physician, “is, generally, as if one were to run after the shadow, and leave the substance which it is desirable to obtain.”<sup>2</sup> And the adoption of this mode of treatment in a disease which, like consumption, so directly compromises the lives of the persons affected, is attended with the most pernicious consequences, because the precious time is lost, during which there would be the greatest probability of succeeding, by the employment of climate and other suitable measures, until the disease has arrived at a stage when the use of all remedial means would fail to arrest its progress. A serious obstacle, however, presents itself to the favourable termination of the disease, in many cases where a cure might be effected, viz., the difficulty which often exists in ascertaining the presence of tuberculous

<sup>1</sup> Compendium de Médecine Pratique, art. Phthisis.

<sup>2</sup> M. Baume’s, Traité des Diathèses. Paris, 1853.

disease at its outset. A minute examination of the physical signs supplied by an abnormal state of the respiratory function, would, in many instances, lead to the discovery of tubercles in the lungs before their presence was indicated by clearly marked general symptoms; but the majority of practitioners are scarcely capable of making such an examination as would frequently suffice to detect pulmonary disease in its earliest stage, especially in England, and probably also in America, where exploration of the state of the organs contained in the thoracic cavity, by means of auscultation and percussion, forms no part of the education of medical students. It consequently follows that the weakness, and various other symptoms experienced by patients in the early stage of pulmonary tuberculization, are usually regarded as the indications of no very serious malady, or of a temporary indisposition; which opinion is often confirmed for a period, by the amelioration which takes place from time to time in chronic cases, and by the temporary cessation or alleviation of chest symptoms, produced under the influence of favourable circumstances, as the summer season; a residence in the country for some weeks or months; or of the remedies which may have been had recourse to. Hence patients, their friends, and frequently the medical practitioner, are misled as to the true nature of the disease, until, at the expiration of a longer or shorter period, either spontaneously or from the action of some exciting cause, the symptoms reappear with aggravated intensity, and auscultation, practised by an experienced physician, renders its existence apparent.

Consumptive patients of the United Kingdom of Great Britain and Ireland have sought, more than those of any other nation, the curative influence of climate; and British medical literature contains a vast accumulation of facts relating to the effects of the climates of our colonies, as well as of other places frequented on this account; but owing to the causes above mentioned, and the late period at which recourse is had to this remedial agent, the results have not been of a satisfactory nature, and we are still far from being able to estimate justly the amount of advantage which climate is calculated to afford in tuberculous disease, when employed under circumstances more favourable to its beneficial action than heretofore.

Abernethy, following in the steps of John Hunter, is the first pathologist who imparted a definite direction to the ideas of his countrymen, with respect to the constitutional origin and treatment of local diseases, in his celebrated work which bears this title; and the principles therein promulgated having been put in practice, more especially as respects the treatment of surgical diseases, have powerfully contributed to raise the character of British surgery from a simple art to that of a science, and have rescued innumerable sufferers from local diseases, from painful mutilations, and premature death. But, even at the close of the last century, and several years before the publication of his work, Abernethy, referring particularly to pulmonary consumption, after having shown that the organ may be the seat of the disease, although its causes may be at a distance, insists upon the inutility—the organ being secondarily affected—of treating the disease as an integral thing.<sup>1</sup> His opinions on the origin of pulmonary phthisis are corroborated by the investigations of recent observers, and their exactness appears to be confirmed by the results of experience. The researches instituted of late years, in different parts of Europe, respecting the nature of consumption and the formation of tubercle, having greatly elucidated its pathology, and induced many practitioners to ascribe more importance to hygienic measures, and to seek to correct the mor-

<sup>1</sup> Surgical and Physiological Essays, 1799.

bid disposition by agencies which conduce to effect favourable modifications in the constitutions of patients, rather than to persist in following the system of pharmaceutic and palliative treatment generally adopted in these cases.

The investigations of M. Boudet are especially important, inasmuch as they demonstrate, by means of chemical analysis, that tuberculous matter contains several saline and other principles, which enter into the composition of the blood. According to this observer, "tubercle is not distinguishable from the parenchyma of the lungs by any special product, but merely by some difference in the proportions of the principles of which they are both composed, especially of the chloride of sodium, which abounds in tuberculous matter, of the phosphate of lime, which, on the contrary, is present only in a minute quantity, and of the cholesterine, which is accumulated in it to such an extent that its proportion is ten times as large as in the substance of the lung. Tuberculous matter treated by alcohol yields oleic, margarie, and free lactic acid, lactate of soda, and cholesterine, in the proportion of a 20th part of the whole mass. Chloride of sodium and phosphate of lime are found in the ashes of tubercle, which likewise yield a small quantity of carbonate of lime, sulphate and carbonate of soda, silex, oxide of iron, and lactic acid.<sup>1</sup>

The salts which are found in the largest quantity in the blood, are chloride of sodium, carbonate of soda, and phosphate of lime; and the variation in the proportions of these salts, as well as that of the iron contained in the blood, occasioned by various causes, must necessarily exercise a considerable influence in the production, and on the course of several chronic diseases. MM. Becquerel and Rodier remark that the diminution of the chloride of sodium is of constant occurrence under the influence of fasting; its proportion is likewise diminished in acute diseases; the quantity of phosphate of lime in the blood is, on the contrary, increased in most diseases. The proportion of this substance being, in healthy blood, on an average, as 350, increases in cases of pulmonary tuberculization to 493.

The retention in the blood of the water, salts, acids, etc., which should be eliminated by the skin more particularly, by altering the composition of this fluid from its normal condition, gives rise to various chronic diseases, of which the origin is not generally suspected. According to the chemical authorities whom I have just quoted, in 100 parts of dried sweat there were found 22 of fixed salts, consisting of carbonate, sulphate, and phosphate of soda and potass, chloride of sodium, phosphate and carbonate of lime, with traces of oxide of iron.<sup>2</sup> M. Favre found (*Archives de Médecine*, July, 1853) that 14 litres (28 pints) of sweat yielded the following principles: 1. Parts soluble in water: Chloride of sodium, 22.305 grains; of potass, 2.437; alkaline sulphates, 0.9150. 2. Alkaline lactates, 3.171; alkaline sudorates, 14.623; urea, 0.428; fatty matter, 0.13; water, 9.955.

We have seen that some of these products have been found in the analysis of tuberculous matter; that the chloride of sodium, of which the amount in the blood is diminished in diseases of debility, is found to exist in abundance in tubercle, and that, on the other hand, the phosphate of lime, which exists, in a very minute proportion, in tuberculous matter, is found to be greatly increased from its normal proportion in the blood of tuberculous subjects.

It would be out of place to enter, on this occasion, further into details pertaining to the domain of animal chemistry; the few remarks which have been made sufficing to indicate the relation which exists between the morbid

<sup>1</sup> Compendium de Médecine, art. cit.

<sup>2</sup> Chimie Pathologique. Paris, 1854.

deposit, the blood and the cutaneous secretion, the practical bearings of which will become more apparent after we have entered more fully into the subject of the present inquiry.

2. *On the Nature of Pulmonary Tuberculization.*—Several distinguished pathologists have considered tubercle to be a product of inflammatory action. Foremost among these in recent times was Broussais, who said that he had never seen tubercles in the lungs without previously existing inflammation. M. Bouillaud, who, in most instances, adopted the opinions of Broussais, likewise considered that tubercle may arise from inflammation of the organs of respiration. More recently, Dr. Addison, of Guy's Hospital, London, expressed the opinion that scrofula and pulmonary tubercle are frequently occasioned by inflammatory action, and, that a great number of the excavations which have been generally considered as arising from the softening of tubercles, are, in fact, a consequence of pneumonia.<sup>1</sup> Reinhardt, of Berlin, in a late publication, considers tubercle to be a product of chronic inflammation frequently repeated.<sup>2</sup> Van der Kolk, of Utrecht, expresses an analogous opinion; which, however, is not adopted by the generality of pathologists and practitioners. Laennec remarked that the development of tubercle is owing to a generally disordered state of the system, which takes place independently of preliminary inflammation, and that where inflammation co-exists with tubercles, it is subsequent to them. Besides, the deposition of tubercles simultaneously in several parts of the body, directly disproves the doctrine of their inflammatory origin. Bayle said that tubercles were never an effect of inflammation, even in the chronic form. Louis believes that although inflammatory action may in some instances exercise an influence over the production of tubercles, yet that in others it seems to take no part in their formation.

Dr. Carswell remarks on this point: "An effect and its cause are always inseparable, and its conditions of an analogous nature. The products of inflammation are coagulable lymph and pus. When, therefore, other products than these present themselves in inflammation, the conclusion to be drawn from this circumstance is, that there exists some other morbid condition than inflammation, and that, to this condition alone should be ascribed the distinctive and essential character of these products.

"Where the tuberculous disposition exists, inflammation or any irritation may attract it to a particular organ; examples of this present themselves in the inflammation of the subcutaneous glands of the neck; a testicle, a kidney may become tuberculous from the same cause."<sup>3</sup>

In order to corroborate his observations, Dr. Carswell mentions the case of a young woman who was attacked by pneumonia and bronchitis, owing to the position in which she sat at her work in winter, viz: between a good fire and a door, and which, being continually opened, gave ingress to a current of cold air. The inflammation was restricted to the left side, which was always turned towards the door, and it was found, on *post-mortem* examination, that the lung of this side was in a state of tuberculous infiltration, the bronchial membrane of the same side being more or less inflamed up to the point of bifurcation of the trachea, where all traces of inflammation disappeared. The right lung was healthy, except at the summit of the upper lobe, where there

<sup>1</sup> Guy's Hospital Reports.

<sup>2</sup> On the identity of tuberculous products with the results of inflammation. (In German.)

<sup>3</sup> Cyclopaedia of Practical Medicine, art. Tubercle.

were some tubercles in a crude state, serving to show the existence of tuberculization, preliminary to the occurrence of the inflammation which on the left side had occasioned the disease to assume an acute form owing to the exciting causes to which the patient was exposed.

Referring to the insufficiency of inflammation to give rise to tubercles in persons not thereto predisposed, M. Andral remarks: "We may readily conceive that a very slight bronchitis may suffice to produce tubercles in one individual, whereas others do not become consumptive notwithstanding the prolonged existence of pulmonary catarrh."<sup>1</sup> M. Fourcault mentions an instance corroborative of the opinion that irritation existing in an organ attracts to it the tubercular deposit in preference to its ordinary seat. "In several patients," he remarks, "unhealthy or insufficient food was the most decided cause of the tuberculous cachexy; consequently, the intestinal tuberculization was much more advanced in its course than the pulmonary tuberculization; the tubercles were in a crude state, or the softening process had only commenced in the lungs, whereas large and deep tuberculous ulcerations were observed in the small intestine. This fact is explained by the principle, that when from the existence of tuberculous cachexy, tuberculization has become imminent, it will fix itself on the viscera to which it is attracted by any irritation of sufficient degree and duration."<sup>2</sup>

Sir James Clark remarks on this subject, "Although I believe tuberculous matter is never a product of inflammation in a healthy person, the inflammation may and often does act as a determining cause in a tuberculous constitution."

In the case of stone-masons, coal-heavers, flax-dressers, metal-grinders, and needle-pointers, who frequently become consumptive, it is not merely on account of the inhalation of metallic particles, stone, dust, &c., that tuberculization is induced, but as Sir James justly remarks: "The sufferers are exposed to causes fully adequate to the production of tuberculous cachexia; they pass most of their time in a confined, deteriorated atmosphere, often in a sedentary position, unfavourable to the action of the lungs; many of them are much exposed to the vicissitudes of the weather, and the majority of them are addicted to the use of ardent spirits." Dr. Alison states that "there is hardly an instance of a mason employed in hewing stones in the vicinity of Edinburgh, living free from phthisical symptoms to the age of 50. Nevertheless tubercles were not found in the lungs of those who were examined after death. In some there were condensed or indurated portions of lung; in others, parts of these organs were in a soft pulpy state, with effused serum, pleuritic adhesions, and much effusion into the bronchia. Few of the workmen in the quarries of St. Roch pass the age of 40; the disease is commonly called the '*Maladie de St. Roch.*' The symptoms are similar in all these cases to tubercular phthisis, and are often, no doubt, connected with it."<sup>3</sup>

We may, then, conclude that inflammation cannot, of itself, give rise to pulmonary phthisis; but that when a predisposition to the disease exists, inflammation, as also irritations of various kinds, when sufficiently powerful and long-continued, may occasion the development of tubercles in any organ which is the seat of them; and further, that it is with reason that pathologists, with some exceptions, have regarded tuberculization as a disease depending upon an alteration of the blood from its normal condition.

<sup>1</sup> Cours de Pathologie Interne.

<sup>2</sup> Recherches Cliniques sur l'Auscultation, &c., Paris.

<sup>3</sup> On Consumption.

But, what is the nature of this alteration? This is a point which has not been determined up to the present time. Several years ago MM. Andral and Gavarret showed that even at the outset of the disease there was a considerable diminution of the normal amount of globules, with an excess of fibrin in the more advanced stages. "The patients in whose lungs tuberculation is beginning," say these authors, "present the particular modification in the composition of their blood which belongs to weak constitutions; they are truly in a state of incipient anæmia, and their blood resembles that of persons who have been repeatedly bled. Thus, the condition of the blood which coincides with the beginning of consumption, and which most likely precedes it, is the same general condition which we find in all cases where from whatever cause the vital powers have lost their energy.

"Is it, however, to be inferred from this, that the impoverishment of the blood in globules is sufficient to produce phthisis? By no means; but it is to us a certain sign that this disease originates in a notable weakening of the constitution, and joined to those signs derived from clinical observation, this sign comes to enlighten us in the choice and direction of therapeutical means."<sup>1</sup>

That the morbid state of the blood which gives rise to tuberculous cachexy, may exist for a long period before the formation of tubercle in the lungs, has been demonstrated by the observations of Sir James Clark, Mr. Ancell, and other pathologists, and there can scarcely be a doubt that the more immediate cause of vitiated states of the blood, is in most instances to be ascribed to a diminution or suppression of the insensible perspiration from inactivity of the capillary circulation of the skin, by which the substances contained, as we have seen, in this secretion, are retained, instead of being eliminated from the system. "We have found," remarks a distinguished medical author, "in the changes which the blood may undergo in its composition, a fruitful source of alterations in the mode of its vitality. It would seem that it is only through this medium that we can act upon the nervous system to modify its action so as to change the constitution of individuals, on account of the extent to which this fluid may vary, and the apparent immutability of the nervous system in its form and structure."<sup>2</sup>

But it is not merely on account of the defective elimination of excrementitious substances from the blood, that inactivity of the functions of the skin may tend to produce tubercular cachexy. The close relationship which exists between the skin and the organs of respiration, and the part which it takes in the excretion of carbonic acid from the economy—and probably in the absorption of oxygen from the atmosphere—must lead us to consider it as a truly supplementary apparatus for the efficient accomplishment of the function of respiration, and that any material derangement of its functions must exercise a most pernicious influence on the organs contained within the thoracic cavity in many cases, even though the effects of this influence may not be immediately apparent.

At the close of the last century the respiratory action of the skin had already been noted by Messrs. Ingenhouze and Cruikshank; and the experiments made by Abernethy clearly showed that carbonic acid was excreted, and the oxygen of the atmosphere absorbed in variable proportions by this membrane. After keeping his hand alternately in two inverted vases containing respectively twenty-four ounces of oxygen and of azote, for a period of eight hours, Abernethy found that two-thirds of the oxygen had disap-

<sup>1</sup> *Hématologie Pathologique.*

<sup>2</sup> Dr. Edwards on the influence of physical agents on life.

peared, whereas only a twentieth part of the azote had been absorbed. "After the hand," he says, "had continued nine hours (in the air of an inverted jar) more than an ounce of carbonic acid gas had been produced, and the remaining air contained one-fourth less of oxygen than before the experiment." Estimating the extent of the surface of the body at 2700 square inches, he remarks that, the increase of the action of the lungs consequent upon the repression of that of the surface of the body, must necessarily often produce diseases of these organs, especially in individuals whose thorax is but imperfectly developed. "If the perspiration of all parts were equal, 77 drachm measures of carbonic acid, and one-third of that quantity of nitrogenous gas, would be emitted from the body in the space of one hour. If we also suppose perspiration to be at all times equal, nearly three gallons of air would be thrown out of the body in the course of one day. About  $2\frac{1}{2}$  pounds is the loss of water which the body maintains in one day; the absorption of air was equal to the perspiration in my experiments, in many it was more, if the air was salubrious to which the skin was exposed."

"I am inclined, on reflection," he adds, "to believe that a deficient performance of the functions of the skin is the principal cause of pulmonary consumption. This supposition explains why the inhabitants of this variable climate, especially those of weakly constitutions and malformed chests, are so peculiarly obnoxious to such complaints. This supposition also shows in what manner the preventing the effects of accidental colds by flannel garments, or by removal to a warmer climate, is so eminently beneficial. The fluids are invited by warmth to the surface, and the functions of the skin are encouraged; the lungs are relieved from oppression, and left free to the exertion of the restorative powers of the constitution."<sup>1</sup>

MM. Becquerel and Rodier demonstrated by experiment that an impenetrable coating of varnish applied to the bodies of dogs occasioned a rapid depression of temperature, followed by death in the course of a few hours; and an author, who of late years, has endeavoured to show the effects of suppressing the functions of the skin in inducing pulmonary consumption, after having made many experiments, remarks on this subject: "Apply a coating of tar or any impermeable substance either to the whole body, or to larger or smaller portions of it. The consequences will be manifested more or less rapidly and seriously according as the coating has been more or less complete. In all cases the health of the animal becomes strangely disordered, and life is seriously compromised. Some have died at the expiration of one, two, or three days; some even after a few hours. Death appears to be the result of a positive asphyxia; the breathing of the animal becomes very difficult; they make deep inspiration in order to inhale a greater quantity of air than in their natural state; they die violently. On opening the bodies, there is found in the veins and in the right cavities of the heart, less frequently in the left cavities, and but seldom in the arteries, a black blood forming at times soft diffuent clots, coagulating with difficulty on exposure to the air. This dissolution of the blood favours ecchymoses and extravasations in the lungs and other organs; the capillary vessels are generally infected; it is evident that the alteration of the blood has been the true cause of the stoppage of the circulation in this order of vessels."

"In cases where the suppression of the perspiration is only partial, the alteration of the blood is less considerable than when it is more general; a reac-

<sup>1</sup> The Surgical and Physiological Essays.

tion takes place; fever ensues, the affected textures present local lesions which have been ascribed to inflammation.

"The action of external agents determines, 1st. A deficiency of equilibrium between the cutaneous exhalation and the other secretions; 2dly. An alteration of the blood and fluids; 3dly. Local lesions, which are absorbed in acute as well as in chronic diseases. Observation, as well as experiment, proves that the morbid movement begins, in the majority of cases, in the capillary network.

"Lactic acid, water, salts of various kinds, fat, and perhaps albumen, some atoms of carbonic acid gas are constantly eliminated in the act of transpiration. When the perspiration is repressed by the impression of cold or humidity, supersecretions and extravasations ensue, and the excess in the blood, of salts, which should be excreted by the skin, incessantly tends, to alter this fluid and those of which it is the source."

"The treatment of pulmonary phthisis is finished where it ought to begin; the air of the country is recommended to moribund persons; phthisical subjects are sent to Italy or the South of France at a time when all hope is lost. In this treatment all is inverted. Remedial means are directed towards the lungs instead of being directed to excite the functions of the skin."<sup>1</sup>

The preceding quotations may suffice to show that pulmonary consumption depends upon a vitiated state of the blood, principally caused by suppressed or diminished action of the functions of the skin, and a deficiency of red globules, and that consequently it should not be considered as a merely local disease, but requires to be treated with reference chiefly to the disordered condition of the blood, and to the causes which have been most instrumental in producing it, before it has arrived at so advanced a stage as to preclude all rational hopes of recovery.

3. *Causes of Pulmonary Consumption.*—Foremost in the rank of the predisposing causes of tubercular cachexy must be placed the action of humidity, especially of a cold and humid atmosphere upon the system, and consequently consumption is found to be most frequent in countries where this state of the atmosphere prevails most during the winter months, as Great Britain and Ireland, great part of France and Germany, and especially in Holland. It is likewise extremely prevalent among the natives in hot and moist climates, as the islands of the West Indies, from the debilitating and relaxing effects of the atmosphere. Thus, according to a statistical table in Sir J. Clark's work showing the relative mortality from consumption in different localities, it appears that the deaths from this cause among the whites (soldiers) are nearly as many as in London, whereas the proportion among the natives is more than twice as much.

The statement of the frequency of phthisis in these parts is confirmed by M. Levacher in his *Guide Médical aux Antilles*. A French writer in the *Gazette Médicale*, states that at Rio de Janeiro the number of consumptive patients in the hospital is nearly as great as in Paris. The Professor of medicine in that city considered that a sixth part of the mortality among the poorer classes in the Brazils was owing to this cause.

On the other hand, phthisis is comparatively infrequent in countries where the climate in winter is cold and dry—as in Sweden, Norway, Canada, great part of Russia. M. Philips remarks in his work on "*Scrofula*" that

<sup>1</sup> Causes Générales des Maladies Chroniques, par le Dr. Fourcault. Paris, 1844.

the inhabitants of cold countries are not particularly liable to be affected by the external forms of tuberculous disease. They are very rarely seen in Iceland, in Greenland, or at Spitzbergen. Colonel Tulloch, in his report to the war office, shows that the soldiers sent to cold and dry countries are less frequently affected by scrofula than those stationed in hot countries. In Nova Scotia and New Brunswick, where the winter temperature is very low, the disease is less frequent than in Jamaica and at Sierra Leone.

Dr. Forry, in his statistical researches in the medical department of the American army, remarks that in the whole southern region of the United States the proportion of soldiers annually attacked by consumption amounts to  $10\frac{3}{10}\%$  per 1000; the total amount of deaths from consumption and hemoptysis amounts to 108; whereas in the northern region, the proportion of consumptive soldiers is but 7 (each year), per 1000, that of the deaths being 47; and, moreover, in that part of the northern region where the climate is the most severe, the proportion of phthisical patients is not more than 5 per 1000.

M. Edwards, in his work already quoted, records the results of a series of experiments which he instituted in order to determine upon animals the relative effects of air in different states of humidity and dryness, of repose and agitation. These results are highly important in a practical point of view, with reference to the subject of our present inquiry, from the proof which they afford of the great influence exercised by the skin—considered as a supplementary organ to the lungs in the act of breathing, as well as of the part which should be ascribed to the diminished activity of its functions of elimination in the production of various diseases of the respiratory apparatus, especially of pulmonary consumption.

“An air saturated with humidity,” says this *savant*, “does not altogether prevent transpiration, but it reduces it to a minimum.

“Within the same space of time (other circumstances being the same except the hygrometric state), transpiration in a dry air was five or six times as great as in one of extreme humidity. A dry air causes sweat to disappear by its property of absorbing humidity, a moist air by the opposite property allows it to accumulate on the surface of the body. In the former instance it might be supposed that the dry air lessened the amount of perspiration; in the latter, that the moist air increased it.

“The constant evaporation which takes place around the bodies of animals in an air which is not saturated with water, constitutes for them a peculiar atmosphere which is more humid than the rest of the air. Now, the currents renew the air which immediately surround the body, and replace it by a drier air. Thus the contact of an air relatively dry will increase transpiration, which will diminish, on the contrary, in a calm air, because the circumambient strata being more slowly renewed, will be more impregnated with humidity.

“Even when the atmosphere appears to us to be quite calm, it is in reality tolerably agitated, and acts sensibly upon evaporation by its motion. The differences of transpiration were very marked, even in an atmosphere which appeared calm. The animals (frogs) which were exposed at an open window lost at least double the amount by transpiration, and according to the intensity of the wind three and even four times the amount lost by those which were placed in the interior of the apartment.

“A slight agitation of the atmosphere, the hygrometrical state and temperature of which are suited to the economy, occasions such a feeling of well-being that the chest dilates in consequence, and admits a larger proportion of air. I have frequently had occasion to convince myself, that persons who

have what is termed a delicate chest, owe in great measure the difficulty and oppression which they experience, to the smallness of their apartment; the difficulty of breathing diminishes or entirely disappears according as they are in a larger apartment, or in freer air. The degree in which the air is agitated exerts the most decided influence on the extent to which the chest dilates; the agreeable sensation which is experienced on breathing in the country is chiefly owing to this cause."

I have frequently had occasion to observe on consumptive patients the beneficial effects of an air moderately agitated, as well as the disadvantages of too calm an atmosphere. As respects, however, the question immediately under consideration, viz., the action of humidity in inducing tuberculous disease of the lungs, I will adduce two or three additional observations from an author whom I have already quoted, who visited several localities situated under different circumstances of humidity and dryness of the air, with a view to ascertain the degree of intensity with which this cause acts, as well as the conservative influence of exercise or of occupation out of doors in neutralizing its pernicious effects upon individuals who lead a sedentary life; in whom consequently the functions of the skin are inactive.

"It may readily be conceived," remarks Dr. Fourcault, "that vicissitudes of temperature will exert their chief influence on the cutaneous surface. Atmospheric perturbations produce but a slight effect on the organs contained in the thoracic cavity, the air penetrates into them only in small quantity through an apparatus of ventilation, being warmed in its passage along the bronchial tubes; the skin, on the other hand, being deprived of any similar apparatus, is liable at each moment to experience the action of atmospheric currents of a variable temperature, which naturally derange its functions. These circumstances have been verified by experimental physiology.

"The experiments of Edwards have been repeated with analogous results upon warm-blooded animals; a calm air saturated with humidity likewise reduces in them transpiration to its minimum. Thus the transpiration of mere living in damp valleys is reduced to its minimum; on the other hand, the skin is powerfully excited by the air of mountains, of elevated plains, and of the sea; the ventilation there carries off a considerable quantity of the elements of transpiration.

"The village of Fontinoz is composed of several hamlets; in the most elevated one, which is exposed to the south, there are but few consumptive or scrofulous subjects; but those which stand on a lower level—one of them being on an acclivity looking to the north, the other between two hills—are very damp and unhealthy. It is especially in these hamlets that scrofula, white swelling, consumptive and other chronic diseases, are multiplied.

"In the same valley, the inhabitants of the more elevated parts are often exposed to acute inflammatory disorders, while chronic diseases are very common in the lower parts; especially where the streets of the villages are narrow, where the water stagnates in them, and the houses are lofty and badly constructed. Individuals who live in cellars die in great numbers of scrofula or consumption.

"Two general causes predominate over all others: deficiency of muscular exercise and humidity give rise to most chronic disorders. These causes act principally upon the skin; they tend incessantly to repel within the torrent of the circulation superfluous or excrementitious elements which should be eliminated from the economy; they thus produce alterations of the blood and cachectic states of the system, of which the origin is unknown."

A writer in the *London Medical Gazette* (vol. xxx.) remarks, with reference to the influence of a moist atmosphere on the production of tuberculous diseases: "Supposing a climate having a mean temperature of 100° Fahr., saturated with humidity, and the blood circulating through the lungs at 100°, there would then be a complete arrest of the evaporation from the lungs: this suppression is one of the causes which tend to produce phthisis. In tropical countries, where the temperature is very high, and the atmosphere almost saturated with humidity, the disease is very frequent. On the other hand, where the climate is dry it is unfrequent. In Egypt, the atmosphere is hot, extremely dry, and tolerably agreeable. In Australia, the atmosphere is temperate and variable, but very dry. At the Cape of Good Hope, especially in the eastern department, the temperature is high, very variable, but very dry. In all these countries consumption is rare. In the West Indies, the temperature is high, but little liable to variation, and the air is moist. At Bermuda the temperature is moderate and very variable; the air is very dense, but it is subject to considerable variations, and the amount of aqueous vapours disseminated through it is great. In these countries, phthisis is very common."

Rainy weather and a humid condition of the atmosphere act also indirectly upon the economy in an unfavourable manner, by keeping persons within doors and by preventing exercise in the open air, which, from its promoting the action of the lungs and the capillary circulation of the surface of the body, is perhaps the most effectual means of combating the predisposition to tubercular cachexy, and of remedying it when already existing. The comparative exemption from consumption which the inhabitants of cold and dry countries enjoy, is attributable, in great measure, to their greater activity, in order to guard themselves against the effects of cold. Dr. Foissac, in his recent work on meteorology, quotes the remark of Admiral Wrangle, that "Diseases are of rare occurrence in Siberia, and old people preserve their vigour until a very advanced period. The exercise which they take in the open air, whether travelling on sledges or skating over the ice, is the chief cause of their good health."

M. Fourcault has well shown by facts the conservative influence of exercise in the open air, even in counteracting the prejudicial effects of humidity, as also the pernicious consequences of seclusion and of sedentary occupations in predisposing to consumption.

"In the small towns of France," he says, "where the population is composed of agriculturists, of artisans, and of a middle class (*bourgeoise*), the proportion of mortality from phthisis does not exceed one in 40 or 50, where these towns are situated on the acclivity of mountains, on elevated plateaus, in dry valleys to which the winds have free access, or in fertile plains. But under these conditions the disease does not develop itself with the same degree of frequency in the various classes of the population. It is very rare among the agriculturists or artisans, who exercise their limbs actively; it attacks, on the contrary, almost exclusively sedentary persons who are habitually within doors, who only exercise their hands or their fingers; who do not expose themselves to the action of the air, and consequently to atmospheric vicissitudes. Hence consumption, and tuberculous diseases in general, prevail almost exclusively among sempstresses, turners, &c. Pulmonary consumption is especially frequent among young persons, or females of the middle class, who lead an inactive life; whereas butchers, carters, drovers, &c., as also women who expose themselves to the vicissitudes of the atmosphere in

country localities, and to the severity of the seasons, are generally exempt. In climates or particular localities, where the fatal influence of humidity is not exerted, this law is general, and the exceptions only confirm the rule.

"Yet further; those individuals who are exposed to the action of humidity only while at work, scarcely ever become consumptive or scrofulous, when they employ actively their physical powers, as tanners, wool-washers in manufactories, dyers, &c. The expansive and sudorific influence of muscular exercise suffices to preserve them from consumption, though they are often liable to rheumatic pains, indicating the decided action of humidity upon the skin. I have observed this fact at Rouen among the dyers, who work in great numbers upon the little river Robec, at Lyons, at Vienne (Rhône), and in all the manufacturing towns which I have explored in the course of my travels. In the agricultural villages of France, where there are no sedentary occupations, and all the inhabitants are engaged in field-work, the proportion of deaths from consumption is not greater than one in 80 or 100 of the whole mortality.

"In seminaries and convents consumption exerts its ravages, which are evidently owing to a deficiency of exercise and of ventilation. Under these circumstances, the inmates become etiolated, their constitution becomes lymphatic, the bones soften and yield, congestions occur, and at a later period consumption supervenes.

"The sedentary occupations usually pursued in Holland concur with the action of humidity in increasing the amount of pulmonary consumption. That which most disposes women to the attacks of this disease is their lymphatic constitution and sedentary life; for, the women who live in the healthy villages of France, Belgium, and Italy, and who are engaged, like the men, in agricultural pursuits, are like them exempt from phthisis. But in the damp climates of Holland and England, the conditions are no longer the same; the humidity exerts a general influence which muscular exercise cannot always counterpoise; and it often happens that, by exciting sweat, exercise supplies a greater hold to the weakening and concentric influence of cold and damp.<sup>1</sup>

Mr. Ancell, in his work on "Tuberculosis," remarks with reference to deficiency of exercise as a cause of consumption and scrofula: "Observation sanctions the opinion that sedentary habits have a most important influence in the production of tuberculosis. Infants often become scrofulous from want of those nursing exercises by which the circulating and respiratory functions are promoted, and a healthful hematosis is secured. The same remarks may be correctly made of young children. Habits of listlessness, not to say of indolence, are often the precursors of tuberculosis in young persons about the age of puberty. Dr. Guy found in the close workshops of a printing establishment that the compositors, whose employment is sedentary, fell victims to phthisis in the proportion of 74 per cent., to 31 per cent. in the pressmen, who, though breathing the same air, and in every respect subject to the same habits of life, differ only in the active bodily exercise of the press; and among the same class of operatives the deaths from the same cause did not exceed 25 per cent. in those who took exercise in the open air. From the same authority, it appears that in single females leading a sedentary life—as book and envelope-folders, bonnet-cleaners, sempstresses, &c.—the cases of pulmonary consumption, compared with all other diseases, were three times as numerous as among those engaged in non-sedentary domestic occupations, as servants, housekeepers, and shopwomen. In females generally, the smallest

<sup>1</sup> Fourcault, *op. cit.*

proportion of cases were in those employed out of doors. In men following indoor occupations, the ratio is highest where there is least exertion, and lowest in employments requiring strong exertion."

M. Lombard found in Paris, Geneva, Vienna, and Hamburg, a greater number of persons leading sedentary lives affected with phthisis than those leading active lives, in the proportion of 141 to 89. In those cities phthisis is twice as frequent in those working indoors as in those who work in the open air. In the hospital for consumption at Brompton, the relative liability was found to be 63 per cent. of indoor males, to 30 per cent. in outdoor, and all the consumptive females followed indoor occupations.

Sir James Clark likewise observes on this point: "The effect of sedentary habits is most pernicious, and there is perhaps no cause (not excepting hereditary predisposition) which exerts such a decided influence in the production of consumption as the privation of fresh air and free exercise. These operate as the principal causes of its greater frequency among females of the higher classes."

Other causes are, however, operative to a certain extent in inducing consumption more frequently in females than in the opposite sex. Their blood contains a greater quantity of water and a smaller proportion of globules than that of males, and consequently becomes more speedily deteriorated when exposed to influences of a noxious nature.<sup>1</sup> The heart, arteries, and lungs are smaller, and have less structural density in women than in men generally, hence their circulation is more feeble at the periphery of the body and on the surface. It is a matter of common observation that females of the upper and middle classes are generally chilly in cold weather, and that a large number of them are subject to cold feet and chilblains. The greater susceptibility of their system renders them, moreover, more liable to be affected by the divers causes of super-excitation, and by the depressing mental influences which are inseparable from an artificial mode of life and a high state of civilization.

As connected with the effect of the impression of cold or damp upon the surface in inducing tuberculous disease, I may observe that too light clothing, and the exposure of parts of the body, as the neck, chest, arms, legs, and feet of delicate females, or of children who possess but little reactive power, must be enumerated among the most common causes of the disease, and of promoting its development where the predisposition exists.

The action of cold upon the skin under these circumstances, not only represses its exhalant functions and tends to occasion a congestive state of the thoracic and abdominal viscera—and, as a consequence, acute or chronic inflammations of these organs, or of their serous and mucous membranes—but also, by depressing the vital energies, favours the supervention of cachectic states of the system. Habit will, it is true, frequently enable persons to bear the impression of these and other deleterious agencies without experiencing any immediate bad effects, though their action may be gradually undermining the health, and often gives rise to unpleasant sensations and indispositions, of which the cause is unknown to the patient and his friends, and very commonly to the practitioner, who vainly seeks to remedy them by medicines.

Adverting to the gradual detrimental action of cold upon children and young persons of the upper classes, who are frequently too lightly clothed, a well-known author, whom I have already quoted, observes: "They do not

<sup>1</sup> According to the estimate of M. Le Canu, the proportion of globules in the same quantity of blood in both sexes is as 99 to 132.

feel the cold, but they experience an uneasiness and an indisposition which arises from it; their constitutions become deteriorated by passing through the alternations of health and disease, and they sink under the action of an unknown cause. It is the more likely to be unknown, because the injurious effects of cold do not always manifest themselves during or immediately after its application, and the constitution is altered without the cause being suspected. The use of warm clothing is often declined, even though the want of it may be actually felt, from the wish to reserve it for an advanced age. But it frequently happens that this very precaution is the cause of preventing that age from being attained.”<sup>1</sup>

The effect of depressing passions and emotions has been too little considered by medical practitioners as strongly tending to produce tubercular cachexy; and yet the influence of this cause is perhaps more generally exerted than that of any other, both in deteriorating the blood and in lowering the nervous energies, by which the system is rendered less capable of reacting against deleterious external agencies. This cause likewise acts by impairing digestion and assimilation by disinclining persons to exertion and to muscular exercise, and consequently by impeding the capillary circulation and checking the action of the skin; whence arise, as we have seen, a congestive state of internal organs and the retention of excrementitious matters in the blood.

Laennec, referring to the great part which should be ascribed to moral causes in inducing phthisis, even went so far as to say, that almost all persons who became consumptive without being thereto constitutionally predisposed, appeared to owe to themselves the origin of their disease. In fact, the destroyed illusions, the deceived hopes of the realization of expectations too often exaggerated by vicious systems of education, the difficulties and anxieties which so commonly beset the path of life, &c., may well be regarded as mainly instrumental in the production of organic disease, and especially of pulmonary consumption.

“When the equilibrium of the moral acts is destroyed,” remarked a late medical writer—no less distinguished on account of his learning than for the elegance of his style—“we may be sure that that of the vital actions will speedily be so. The physician Élie maintained that four-fifths of men die from grief; an assertion much less paradoxical than might be supposed; for truly, there are few diseases which, in the actual state of our civilization, are not the reflex action of some strong moral affection. It is the certain result within a given time, which must be measured according to the violence of the attack and the individual disposition. Aneurism, liver enlargement, scirrhus, softening of the brain, most nervous diseases proceed more or less directly from some misfortune, experienced, it may be, long before, but of which the weight, the remembrance have at once broken down, or gradually weakened the springs of life. No one, therefore, dies of grief, of despair, nor of lost illusions; it is gastritis, pericarditis, apoplexy, which take the place, by their evident effect, of the real and active, though hidden principle of so many evils. Acute and profound moral suffering is, then, the point of departure of the greater number of organic alterations.”<sup>2</sup>

If the inferior classes of the population are less frequently affected by causes exclusively of a moral nature than their superiors in station, the same result is often produced by excess of labour, deficiency of suitable food and habita-

<sup>1</sup> Edwards, *op. cit.*

<sup>2</sup> Reveillé-Parise. *Études de l'homme dans l'état de santé et de maladie.*

tions, and by other anti-hygienic circumstances to which this class is particularly exposed.

M. Lombard estimated that phthisis is twice as frequent among the bulk of the population as in that part of it which lives in easy circumstances. From a statistical account, published by M. D'Espine, in the *Annales d'Hygiène Publique* (1847), the mortality from consumption amounted to 155 per 1000 of the general population; among those in rich and easy circumstances, only 68 deaths in 1000 were attributable to this cause; whereas, among the poor, the proportion amounted to 233 per 1000. It must, however, be observed that this statement has reference more especially to Geneva, where the upper classes lead regular lives, abstaining from dissipation, and are consequently comparatively little exposed to the superexcitation, and to the various depressing moral and physical causes, to which is subjected a large proportion of persons of the upper classes of other countries, especially in large capitals, as London or Paris, and which contribute greatly to increase the number of deaths from phthisis, particularly among those who are predisposed or of weakly constitutions, of whom many succumb in early youth.

The consideration of the part which is to be ascribed to hereditary tendency in the production of phthisis is foreign to the subject which I have undertaken to treat. Whether the predisposition to the disease be hereditary or acquired, the principles of prophylactic and curative treatment by climate and other means of rectifying the morbid disposition of the system, would be about the same in both cases. The only other cause to which I need refer, as having been considered mainly instrumental in inducing tubercular disease, is a disordered condition of the digestive apparatus. Dr. Wilson Philip described, many years ago, a form of dyspeptic phthisis, "of which the principal characteristic, as revealed by autopsic examination, was the disorganization of the liver."<sup>1</sup> More recently, Dr. Todd has described a "strumous dyspepsia," which he considers to be the almost constant precursor of the development of tubercles in children. Many children, however, become consumptive without being either scrofulous or dyspeptic, and in many of those patients who have passed the period of puberty, the function of digestion is well performed, or is subject only to slight derangements up to an advanced stage of the disease. On the other hand, but few dyspeptic patients become consumptive, unless predisposed to the disease, or exposed to any of its more active causes. In persons predisposed, or of a delicate constitution, derangement of the digestion (which often ensues from the operation of moral causes) may become an active cause of tubercular cachexy, on account of the impediment which it presents to a due assimilation of the food, and consequently by giving rise to an impoverished state of the blood, lessening the vigour of the circulation, and diminishing the cutaneous and other secretions; but in general such derangement cannot be considered in the light of a primary cause. The original lesions which are not within the digestive organs, are consecutive, with the exception of tuberculization, which may precede or coexist with tubercles in

<sup>1</sup> On examination, M. Louis found that of 127 subjects who died of consumption, 47 had the fatty state of the liver, which is also frequently met with in scrofulous subjects, but almost always there exist at the same time tubercles in the lungs. M. Andral considers that this degeneration arises from a defective nutrition, deducing his opinion from a law of the economy, viz., that whenever an organ becomes atrophied, fatty matter is secreted around it, and even in the place of its molecules. M. Méral considers that it depends upon the vitiated state of the blood, which, when respiration is impeded, becomes more carbonated and oily, as does also the bile.

the lungs or the bronchial glands, but which is likewise frequently consecutive to the pulmonary tuberculization.

In scrofulous children the deposition of tubercle mostly occurs in the first place in the abdomen, especially in the mesenteric glands, and then a strumous dyspepsia precedes the manifestation of pulmonary phthisis, which it may likewise do in some cases where there is no abdominal tuberculization. The fatty state of the liver, which Wilson Philip regarded as a cause, is also a consequence of pulmonary disease.

4. *The Effect of Climate on Tubercular Consumption.*—In estimating the effects which climate is calculated to produce upon those predisposed to, or labouring under tuberculous disease, our attention should be directed in the first place to the general condition and circumstances of patients, and to the more or less advanced state of the disease; and subsequently to the various accessaries to the action of climate which powerfully conduce to a restoration or an amelioration of the health, but of which the absence often neutralizes the beneficial influence of this medical agent. Many individuals predisposed to or affected by consumption, must necessarily be debarred from profiting by the advantages offered by change of climate, either on account of family or other reasons which prevent them from travelling, of their poverty, by which they are deprived of the means, or from the acute nature and rapid progress of the disease, as when it supervenes on some other complaint.

In those cases which present little hope of permanent amelioration, the practitioner is restricted to his endeavours to afford relief in palliating the urgent symptoms resulting from the local lesion, which requires all his attention; but in the more chronic forms of the disorder, which are the most frequent, and commonly met with among the richer classes, the case is different. Here the disease pursues a course of several months or years, being usually preceded by a manifestly deranged condition of the general health; the tubercular deposit instead of being disseminated throughout the whole pulmonary structure, is restricted within more or less circumscribed limits; more time is consequently allowed for the adoption of suitable means of relief, and if the disorder be of recent date (especially if there be merely a cachectic state, without indication of organic lesion), we may reasonably hope that in many cases, by attempting to improve the patient's general condition, and to remedy the abnormal alteration of the blood, by means of climate and other hygienic and medicinal agencies, we shall succeed in obtaining permanent cures; for, the chief thing to be apprehended is, not the existence of some tubercles in a circumscribed portion of the lungs—since experience has proved that these bodies may remain in a crude state for a long period without very serious disturbance of the health, and even without their existence being suspected, that they may be absorbed, may undergo the cretaceous transformation, or be expelled after the process of softening—but rather the persistence of the tuberculous diathesis, which gives rise to successive depositions of the morbid product. It is, therefore, against the diathesis, or the cachectic state of the system, and not against its local manifestations, that our remedies should be principally directed, and it is by placing patients under favourable circumstances of locality, climate, &c., which remove them beyond the sphere of action of the most common causes of tuberculous cachexy, and which tend to neutralize the influence of these causes after their pernicious effects have become apparent, that our efforts to cure would be most likely to be crowned with success, provided the deterioration of the constitution, or the organic lesion had not proceeded too far.

The predisposing causes of tuberculous disease are all directly or indirectly of a debilitating nature, and, although the symptoms arising from vascular congestion, inflammation, or irritation of the afflicted organs, often require the adoption of antiphlogistic or revulsive means, the principal indication in the treatment of the majority of cases, in an early stage of the disease, and before it has manifested itself by urgent symptoms, is to subject the patient to a generally strengthening regimen, adapted to the circumstances of individual cases. From the view which we have been led to take of the nature of pulmonary phthisis, it must be evident that our attention should be directed, in the first place, to improving the functions of the skin, which are always more or less deranged in cases of phthisis or of tubercular cachexy, from defective or irregular action. The sweats to which patients are liable in the more advanced period of the disease are no contradiction to this position, as they consist of partial or general transudations arising from debility, increased arterial action, and a want of tone of the secreting organ. Now, when the vascular system is deficient in vigour, it is in the capillary circulation of the surface and periphery of the body that the effects are most apparent, the insensible perspiration being consequently more or less suppressed. Those measures, therefore, which tend to raise the tone of the system and to increase without too greatly exciting the vigour of the circulation, may be considered as acting the most favourably in remedying the tubercular diathesis, and the best if not the principal means of producing this result are a residence in an appropriate climate, change of air, and of mental impressions by travelling in an interesting country. Independently of its other effects upon the economy, the action of a warm and dry atmosphere in winter, promotes perspiration, which, as we have seen, is directly repressed by the influence of a cold and humid, or even of a warm and humid atmosphere. "In hot and damp weather," says an author, who has recently treated of climate, "the cutaneous perspiration is performed with difficulty; a feeling of languor and of depression is experienced, which makes the heat appear stifling, and renders all exertion insupportable. Thus, while extreme dryness of the air exhausts the body, gives rise to inflammations, and irritates the nervous system, excessive humidity engenders scrofula, rheumatism, &c., accelerates decomposition, produces atony of the system, and even stupidity. On the other hand, a moderate degree of dryness increases the activity of the functions without exciting or exhausting the sensibility; occasions a salutary derivation upon the whole cutaneous surface, and concurs, though indirectly, to maintain a desirable equilibrium of the mind and passions, in a word, to preserve the health."<sup>1</sup>

It has been shown that a cold and dry air has a preservative effect against the attacks of consumption and scrofula, but it would be wrong to infer, that because in Sweden, for instance, the ratio of mortality from these diseases is smaller than elsewhere, it would be advantageous to send thither patients labouring under or predisposed to phthisis, whose vital powers are greatly weakened. It is true that we now and then meet with or hear of a delicate person who appeared to present the signs of a phthisical predisposition, acquiring robust health, by emigrating for a longer or shorter period, to countries where the winters are excessively cold, and at the same time dry (as Canada); but these are exceptional cases, and when change of climate becomes a question for the medical practitioner to consider, it is almost always that he has to recommend patients to choose one of a higher temperature than that in which they have been accustomed to live. This recommendation is, however,

<sup>1</sup> Foissac, de la Meteorologie.

too frequently given in an abstract manner, without sufficient regard being paid to the difference of patients' constitutions, their actual condition, and their greater or less power of resisting cold, or what is the same thing, of producing heat. A climate which might be considered mild, and be well suited to one patient, would often, as respects others, be cold and prejudicial; for, if there exist great differences between healthy persons with regard to their power of reacting against deleterious external influences, the difference is still greater in those who are sick and weakened by any cause. An individual whose power of producing heat is diminished, will often bear with advantage a moderate degree of cold for a certain time; but if he be subjected to its influence for a prolonged period, his constitution being no longer able to react against the accumulated action, he would not fail to experience its prejudicial effects upon his health.

After adverting to the results of some experiments upon frogs, made with a view to determine their power of generating heat, M. Edwards proceeds to observe: "Where, therefore, the exposure to cold is prolonged, the effects of each portion of the time of the exposure are added to those portions which follow it. Hence, individuals of this class experience a progressive diminution of their faculty of producing heat from the longer duration of the same degree of cold.

"It follows from the facts which we have stated, that when a person undergoes a change of constitution, which lessens his production of heat, or his consumption of air, he cannot support the same degree of cold, which previously would have been salutary to him, without the rhythm of his respiratory movements being sooner or later altered; hence arises the necessity, when these two functions have undergone this alteration—as in cases of organic affection of the heart and lungs—to place the patient in relation with a milder temperature, either artificially produced, or by causing him to change his climate."

A warm and equable climate, even though it be moist, has a beneficial action upon the majority of persons labouring under diseases of the respiratory apparatus, who come from colder regions; but a prolonged residence in such a climate would frequently not be advantageous to them, on account of the relaxation of the constitution which it generally produces, and which renders them less able to resist the temporary or accidental impression of a fresher air, or the action of a colder atmosphere, on quitting the places of their sojourn. On this account, the natives of tropical climates, when brought to colder latitudes, as also Europeans who have long resided in those countries, on returning home, so frequently become consumptive.

We have seen from the evidence of a resident physician at Rio de Janeiro, that a large proportion of the natives of the Brazils die from pulmonary consumption. A writer in the *Gazette Médicale de Paris* (M. Dujat), remarked, some years ago, with reference to the same locality: "At Rio, phthisis is infrequent among the Europeans. M. Levacher says that the progress of the disease in Europeans is retarded in the West Indies; they seemed to acquire a new existence, and lived several years without experiencing any symptoms of their disease; several were able to leave, presenting all the characteristics of an apparent cure." "But," adds this writer, "the patients treated in the military hospital at Chatham, furnish proofs that a prolonged sojourn in hot countries and the diseases of those countries, give rise to tubercular cachexy."

Sir James Clark remarks, on the same subject: "A long residence in a very equable climate is not favourable to health, even with all the advantages of exercise in the open air. A moderate range of temperature, and of at-

mospheric variation, seems to be necessary for the preservation of health ; whence it follows that many patients who derive great advantage from a temporary sojourn in a mild, sheltered position, do not bear a long residence in a similar atmosphere without injury. Dr. Combe, during his stay at Madeira, remarked that the invalids always felt themselves better when the temperature was less steady and the atmosphere more variable, than when the season was unusually mild and agreeable. I have observed the same effects resulting from a long residence in some of the more favoured spots in our own island. Such situations form excellent residences for a time ; but afterwards the patients cease to improve, and lose rather than gain in strength. A prolonged sojourn in very mild, sheltered positions, I consider to be unsuitable to young persons disposed to tubercular disease.”<sup>1</sup>

“Air in motion,” says M. Edwards, “acts only upon exposed surfaces, as the integuments of the body ; those of the lungs are sheltered, and notwithstanding their communication with the atmosphere, the agitation of the air has but a slight share in the quantity of vapour which they furnish. This consideration will serve to determine the choice of suitable places for the residence of delicate persons. Those to whom the increase of evaporation from the lungs is injurious, ought to prefer an atmosphere less dry, but slightly agitated when it is important to obtain an agreeable freshness.”

An eminent London physician likewise observes : “We must be very cautious not to carry our anxiety too far ; for it is an undoubted fact that, within the limits of moderate hardihood, exposure to the open air and the vicissitudes of the atmosphere is the best safeguard against the attacks of phthisis in those who are predisposed. It is to the effects produced upon the skin that great part of the benefit produced by residence in a mild climate is probably attributable. Atmospheric exposure is another very important point ; in our variable climate it is inadmissible.”

“It is at this period (the early stage of the disease) that sea voyages, and residence in a milder climate, are to be recommended. If we leave them to a much later period, the sacrifice of domestic comfort and the expense of toil and travelling are undertaken with scarcely a chance of any adequate benefit ; whereas, at this time, if the patient be so placed, that for a winter or two he is able to pursue his exercise in the open air, without breathing an atmosphere which at every inhalation irritates the bronchial tubes, and without exposing the surface of his body to be chilled, and the perspiration to be checked at every hour of the day, a great deal of benefit may result, and the cure which is begun may be accomplished, or at all events the progress of the disease be greatly retarded.”<sup>2</sup>

Mr. Ancell likewise remarks on this point : “If the blood, either by the resources of nature alone, or by that of nature assisted by art, resume its normal constitution and its healthy vitality, the local affection, if no vital organ be extensively diseased, will get well spontaneously. Our curative principle is peremptorily to prescribe air, and to endeavour to select such a locality, and such a climate, that the patient may be out of doors at all hours of the day, and all the days of the year. One great desideratum is uniformity as respects pressure, moisture, and temperature, and another, freedom from pernicious winds. A rarefied, light, and comparatively dry and agreeable atmosphere is to be preferred.”<sup>3</sup>

<sup>1</sup> On climate.

<sup>2</sup> Bright and Addison's Practice of Physic.

<sup>3</sup> Treatise on Tuberculosis.

These quotations from the works of practitioners who have had considerable opportunities of treating pulmonary consumption, and of appreciating the effects of climate on its progress, may suffice to show that in most cases, where the object sought to be attained is a cure or permanent amelioration, by improving the quality of the blood, a very agreeable climate is not the most desirable. In the course of my residences at various places frequented on account of their climate, I have had many opportunities of convincing myself of the advantage which patients with chronic disease of the respiratory organs derive from breathing an atmosphere moderately agitated, as also of the enervating influence produced by a calm state of the air, and a very warm and equable climate, too long continued.

The air of Rome, for instance, is very calm, being rarely agitated by strong winds; and although a residence there, during the whole of the winter, suits some patients, many others, on the contrary, to whom a few weeks' sojourn is advantageous, are disagreeably affected, and their general health suffers, not unfrequently being accompanied by an aggravation of chest symptoms, when their stay is prolonged for five or six months. So, also, a change would very often be desirable, after a time, for patients who go to winter in the climates of Madeira or Malaga, especially on the approach of spring, which there sets in early, and when the heat is not unfrequently inconveniently felt during the greater part of the day; but as these places are distant from any others frequented on account of health, a voyage could not be undertaken without considerable risk. Thus, in cases where a very equable climate is not specially indicated, and where there is reason to believe that a change would be advisable in the course of the winter, the Italian places of resort, notwithstanding their atmospherical vicissitudes, present several advantages, especially as respects the facilities of communication existing between them. The character of the climate of certain localities likewise varies materially, in the course of the six months of winter and spring, on which account a change of place is indicated for patients sojourning there who labour under pulmonary disease, though it is not always had recourse to. It is from these various circumstances having been too little considered that a great number of patients do not derive the advantage they otherwise might from the beneficial influence of climate. We find their condition rather worse than bettered by its injudicious employment.

Again, in several cases of predisposition, or of incipient disease, a certain amount of stimulation of the system produced by a warm and exciting climate would be advantageous, if not of too long duration. A locality likewise, which might be desirable as respects its advantages of climate, might be unsuited to many patients from its want of resources for occupation and recreation. Cases of phthisis not unfrequently owe their origin, as we have seen, to painful moral impressions which act by undermining the general health; and as respects the majority of patients, mental recreations which afford them the means of occupation in the evenings, or when they are detained within doors; cheerful society, the aspect of a pleasing country, a variety of walks and rides by which monotony of impressions is prevented, conduce materially to promote a cure or to procure an alleviation of their disease. The consideration, as to whether places to which patients with pulmonary disease are recommended, possess resources for mental occupation or diversion, is therefore a very important one, and yet it is overlooked by most writers on climate, who seem only desirous to specify the meteorological details of the places of which they treat. Thus, M. Carrière in his work on the "Climate

of Italy," infers from the equability of climate said to be enjoyed by some places altogether destitute of resources, as Mola di Gaeta, Puzzuoli near Naples, some towns in the Tuscan Maremma, &c., that these would be favourable situations for consumptive patients; but what invalid would think of remaining for any time in similar localities, or what physician would counsel such a course? The same writer mentions Venice as a favourable winter climate, but although it may be better than that of other parts of northern Italy, Venice is open to the influence of the winds from the north and northeast, which though not frequently severely felt are at times inconvenient. But although a three or four weeks' sojourn there in the autumn or spring might be advisable, yet I consider that Venice would be a very unsuitable winter abode for the great majority of invalids. There is no place for riding or driving; the only places for walking exercise are St. Mark's Square, and a circumscribed public garden; there is no society for visitors—most of whom after having seen the objects of interest which the city contains, find no inducement to prolong their stay.

We have seen that the causes which are most instrumental in inducing tubercular cachexy by suppressing or lessening the excretory and absorbent functions of the skin, and in vitiating the blood, are humidity, a sedentary mode of life, and the depressing passions. Now, the principal advantage of a mild, dry and sunny climate in winter, is, that it places patients in the most favourable conditions for counteracting the influence of these causes, enabling them to take daily exercise in the open air, by which the muscular, respiratory, digestive and cutaneous systems are maintained in healthy activity; whereas, in a cold and damp climate, such persons must necessarily pass many days within doors, breathing the close atmosphere of warmed rooms, and must moreover be deprived of the mental diversion which is afforded by the variety of objects met with in walking or riding. Thus in any such climate the quality of the blood becomes improved, and the tendency to the formation of tubercle is diminished. The nervous and muscular systems experience the beneficial effect of this amelioration, which is manifested by an increase of tone and vigour. The *moral* is likewise agreeably impressed by the contrast which sunshine in winter presents to the cloudy and rainy skies of which a lively recollection is retained. "Is it not true," asks M. Foissac, in referring to the effects of light on the disposition of the mind, that in bad weather the mind is more disposed to melancholy? Is not British spleen occasioned, or at least kept up by the thick fogs which constitute for the inhabitants of Great Britain an atmosphere of dulness and ennui? Are not petulancy and vivacity excited by the aspect of clear skies and sunshine? That they are so is proved by the animated gestures, and the expressive play of features of the natives of southern climes."

A residence in a suitable climate has not only a directly beneficial effect in improving the condition of patients, but it is likewise indirectly advantageous by placing them under the most favourable circumstances for deriving the full amount of benefit from such remedies as are more particularly indicated; and it is doubtless on account of patients being in unfavourable hygienic conditions that remedies which have been found to be highly serviceable by some practitioners, have so often failed to produce good effects in the hands of others who have tried them on hospital patients, or others exposed to the anti-hygienic influences of large cities. A tonic plan of medication, for instance, is not unfrequently beneficial in incipient phthisis, even under disadvantageous circumstances of locality, mode of life, &c. Iron is

the remedy of this class which has been the most highly spoken of, and I have employed it in several cases of pulmonary disease with good effects. M. Dupasquier, a French provincial physician, experimented largely with the proto-ioduret of iron in cases of consumption, and speaks highly in its favour, even when employed at an advanced period of the disease, when its use would generally be considered to be counter-indicated. "The cough, the sweats," he remarks, "subsided, or were allayed, the circulation became slower, the fever was lessened, the strength and appetite improved even in an advanced stage." (*Gazette Médicale*, 1842.)

On the other hand, some of the most distinguished physicians of Paris, as MM. Louis and Andral, state that they employed this remedy without any good resulting from it; and that in some cases the symptoms were greatly aggravated, as indeed must always be the case where remedies are tried experimentally, with but little regard to the circumstances in which the patients are placed. The same may be said of revulsive agents—as issues, setons, &c.—the use of which is often attended with marked benefit when the hygienic condition of patients is favourable, but which often fails to afford relief under circumstances of an opposite nature.

All the physicians practising at places frequented by patients labouring under pulmonary disease, ascribe the want of success, and the disappointment frequently experienced by patients and their friends, of their expectations of the advantage to be derived from climate, to the circumstance either that patients arrive in too advanced a state of disease to be materially benefited, or to their want of precaution in guarding against atmospheric transitions, and to the neglect of hygienic rules, the observance of which is rendered imperative by their condition. I have frequently had occasion to witness the bad effects resulting from those causes. Patients on seeing from their residences or from sheltered gardens the sun brightly shining, are apt to go out on foot, on horseback, or in a carriage, too lightly clad, and unprovided with extra garments to put on when passing through a colder temperature, to the action of which their previous exposure to the sun will have rendered them more susceptible. They likewise frequently remain out later in the evening than they should do; attend parties, and on leaving heated rooms expose themselves to the night air, commit errors with respect to diet, &c., whence they seldom fail to experience evil consequences, which are too often laid to the account of the climate.

Sir James Clark justly remarks on this point: "Among the numerous circumstances which require attention in recommending a change of climate, one of much importance is often entirely lost sight of, both by the physician and his patient. We mean that necessity of perseverance in the regimen and mode of life which the peculiar nature of the disease demands. This must be urged upon the invalid as the condition on which alone he can expect to derive benefit from the proposed measure. We are satisfied from ample observation, that change of climate has not been productive hitherto of all the benefits which it is calculated to effect; nay, that it has often done positive mischief, chiefly on account of the inconsiderate and injudicious manner in which it has too generally been prescribed and carried into effect."<sup>1</sup>

Mr. Ancell remarks on the same subject: "I have known several tuberculous individuals who have been to Madeira, and returned with their health completely restored, but on questioning them I find that they have lived twice or thrice as much in the open air as they were accustomed to do at the

<sup>1</sup> *Cyclopedia of Practical Medicine*; art. Climate.

corresponding seasons of the year at home. They have also taken infinitely more exercise, and that of a gentle and salutary kind; they have been relieved of many of the harassing cares of life, and followed out judicious directions as to their diet and habits. I have been informed of others who have gone out under equally promising circumstances, but have fallen into irregularities and dissipations; have adopted the converse of these hygienic customs, and have not only received no benefit, but their disease has progressed even more rapidly than it would have done had they remained at home.

When, therefore, we seek to estimate the degree of influence which climate in general, and the climate of particular localities, is calculated to exert in cases of tubercular disease, we must take into consideration all the circumstances which are likely to promote or hinder its beneficial action, as well as the particular conditions of patients; both as regards their general health, and the state of the affected organs. When tubercles have been found to exist in the lungs, the practitioner who contemplates recommending a change of climate, will endeavour to ascertain the extent of the lesion; whether or not the disease be simple, or complicated with disease of other organs; and when such complication exists, he will have to consider whether it be such as to counter-indicate the recommendation of the kind of climate which otherwise might seem to be most suitable. In a large proportion of cases phthisis in an early stage exists without any very notable complication. In some cases the complications met with are consequences of the tuberculous deposit, or are accidental, as when there is bronchitis, which, as we have seen, will not of itself suffice to produce pulmonary phthisis.

In general terms it may be said that in the majority of cases of the disease in an early stage, when the patient's strength is not materially lowered, and when there does not exist any undue susceptibility of the respiratory apparatus, the beneficial influence of a change would be likely to be so much the more apparent in proportion as the places whose climate appears to be suitable, combine the most inducements to be much out of doors, with resources for indoor occupation at other times. A mild, dry, and somewhat exciting climate, where the air is moderately agitated, without too great or sudden variations, would be best calculated to procure the removal of tubercular cachexy, and to prevent any further formation of tubercle, by improving the deranged functions of the skin, of digestion and assimilation, when these are defective, and consequently the state of the blood. On the other hand, where the disease occurs in subjects of an excitable or nervous temperament, and where from this cause or from the more advanced state of the disorder the circulation is accelerated—if the breathing be difficult, with much cough, and especially where hæmoptysis has repeatedly ensued—the most urgent indication will be to allay the morbid excitability of the system, which would be best effected by a climate of an opposite character to the preceding, viz., a warm, calm, and somewhat moist atmosphere, which would favour the repose of the organs of respiration and circulation. In a climate of this kind, however, though patients would often feel themselves relieved, and might continue to live in comparative comfort for a lengthened period, there would be less likelihood of the blood regaining its normal condition, than if they were in such a state as would enable them to bear, without inconvenience, the action of a more bracing atmosphere; and on leaving a climate of this kind, they would frequently be liable to experience a recurrence of the symptoms which had subsided under its sedative influence, on being exposed to the greater atmospheric variations which they would have to encounter elsewhere.

The length of time that patients should remain in a climate which the state of their case seems to indicate, necessarily varies according to circumstances. Most places which would be suitable for a winter's residence, would be unsuitable in the summer season. For many patients affected with tuberculous disease in a slight degree, one, two, or three winters passed in appropriate localities, aided by such other means as their state may require, would not unfrequently suffice to re-establish their health. Several would often derive more advantage from changing the place of their abode, than from returning successive winters to the same locality, and sometimes even from not remaining the whole of the winter in the same place. It is, however, only after careful examination of the circumstances of each case individually, and of the changes which may have taken place in patients at various times, that the practitioner would be able to judge of the locality and kind of climate which would be best adapted to answer the indications, as well as of the period during which it would be necessary for them to have recourse to the remedial agency of climate.

A marine climate has often been found advantageous in the earlier stages of tubercular disease, and it is so, doubtless, more on account of the moderate agitation of the air in the sheltered positions on the coast which are usually chosen, than from its impregnation with saline particles. As respects the Mediterranean, it has been demonstrated by experiment, that the air on the coast as well as on vessels, does not contain any saline matter when the sea is calm.

On the coasts of the Atlantic and North Sea, where there are tides, and where the sea is continually in a state of agitation, the air is impregnated in a certain degree, but it is questionable whether this impregnation has much share in the invigorating effects which patients not unfrequently derive from a residence on the coast, and from sea voyages. These effects are rather to be ascribed to the constant renovation of a pure air, which acts in promoting the free performance of the functions of the lungs, of the skin, and of the digestive apparatus. A residence near salt works, and the inhalation of the air impregnated with the vapour from the boiling pans, have likewise been regarded as a preservative against consumption, and also as a curative means, from the circumstance that the men employed in these works are very seldom attacked by the disease; but the same exemption is met with among other classes of men who pursue out-of-door occupations. M. Lebert, who lived several years at Bex, near the Lake of Geneva, where there are extensive salt works, remarks, that he never knew a labourer employed in these works who became consumptive.

"It must, however, be observed," he adds, "that only strong men are received as workmen; they only work eight hours a day; they are well paid, are almost all cultivators of land, and they live in a healthy and prosperous country. But, admitting the conservative influence of a residence near salt works, are we justified in inferring from this, their curative action? I think not, and subjected several consumptive patients of the neighbourhood to the habit of walking around the evaporating houses, and of breathing the warm air from the boiler during the coction of the salt; but I have not seen result from this practice any other effects than those which might reasonably be ascribed to the favourable hygienic conditions under which the patients were placed; the mild and sheltered air, a fine country, milk of excellent quality, and good food."<sup>1</sup>

<sup>1</sup> Des Maladies Tuberculeuses. Paris, 1852.

Sea-voyages have been recommended from the earliest periods as a means of curing consumption; and their influence in strengthening a delicate constitution, and in frequently preventing the formation of tubercle in persons thereto predisposed, has probably not been overestimated.

Some writers mention cases of phthisis apparently in an advanced stage, said to have been cured by this means. A modern author (M. Bicheteau) in his work on the diseases of the organs of respiration, speaks favourably of voyages, and considers that the benefit derived is attributable to the sea-sickness which they produce. His favourite mode of treating consumption is by emetics, which have likewise been highly praised by some British practitioners, though their employment has not been followed by favourable results in the hands of others.

When emetics render service in this disease, it is, I conceive, chiefly because they give rise to active perspiration; and sea-sickness may likewise occasionally be of use in this manner; but in long voyages, it seldom lasts more than the first few days, and, when of longer duration, would produce great exhaustion in persons already weakened by disease. It has, moreover, the disadvantage of confining patients to the close air of their cabins, whereas in order to derive advantage from sea-voyages, they should be much on deck, and able to take exercise, in order that by the constant renovation of the air, the functions of circulation, respiration, and digestion may be more perfectly performed, and the insensible perspiration promoted. It is therefore essential that patients who are recommended to try the effect of sea-voyages should have a certain amount of strength, and that they should like the sea, and that the disease should not have made much progress.

In the more advanced stages where the aid of medicine is continually needed, as also when the patients are in a weak state, or when from want of resources they would be likely to experience disgust and ennui from the monotonous mode of life pursued at sea, long voyages would generally be prejudicial. Short voyages of a few days' duration, as when patients are going to or returning from places of winter sojourn, would be in general beneficial, where the effects of sea-sickness are not apprehended. It is, therefore, only to a small number of patients (chiefly of the male sex) that sea-voyages would be suited as a remedial means.

On the other hand, land journeys, in a carriage, on horseback (or even on foot, when patients are sufficiently strong), through an agreeable country, would mostly be attended with good results, provided they be not counter-indicated by the patient's weakness, or by the excitement to which the act of travelling gives rise.

In land journeys, as in sea-voyages, the air being constantly renewed, produces greater activity of the functions of organic life; there is less susceptibility to cold, and the stomach is less liable to be prejudicially affected by articles of diet which at other times would disagree.

Travelling by land has, moreover, the great advantage over voyages, that the patient's mind is occupied and diverted by the incidents of the route, and by the variety of objects which continually prevent his attention from dwelling on sombre thoughts, which his state of health is so calculated to inspire; this circumstance materially conduces to remedy a cachectic condition of the system, and to prevent the extension of existing local lesion.

In cases where the lungs are diseased, or are disposed to become so, and where there exists at the same time considerable debility of the assimilative powers, emigration to a warm winter climate is especially imperative. A greater

quantity of oxygen is inspired by the lungs in cold than in warm countries, consequently, a greater quantity of food is required in order to obviate the inconvenience which the admission into the system of a superabundance of oxygen is calculated to produce in debilitated persons, the activity of whose capillary circulation and cutaneous functions is lessened.

When, therefore, the stomach is not in a state to digest the amount of food necessary to neutralize the effects of an excess of oxygen upon the lungs, it becomes essential to reduce the quantity of gas which is received into them; this object is best effected by patients residing in a warm climate, where their skin acts more freely with but little exertion on their part.

The necessity of the amount of food being regulated according to that of the oxygen received into the pulmonary system, and of the carbonic acid expelled from it in the act of travelling, as well as the influence exercised by an active state of the functions of the skin upon the digestive apparatus, have been well shown by Professor Liebig. "We expire," he observes, "more carbonic acid in a low temperature, and under a strong pressure, than in a high temperature. We must consequently consume by food, a proportion of carbon which bears a relation to this quantity. Thus, in Sweden, more food is required than in Sicily; in our temperate regions, at least an eighth more in winter than in summer. In winter, when we are in a cold air, where consequently the amount of oxygen is greater, we feel increase in proportion, the want of carbonated and hydrogenated food. When this want is satisfied the body can resist the most intense cold. Thus the quantity of food consumed is regulated by the number of inspirations, the temperature of the air inhaled, and by the quantity of heat generated in the body."

Persons whose digestive organs are weak, whose stomach consequently cannot place the food in the requisite state for combination with oxygen, cannot support the severe climate of England. Their health requires, therefore, to be improved in Italy, and in southern countries generally, for they there inhale a comparatively smaller proportion of oxygen, and their organs will still have sufficient vigour to digest a smaller quantity of food. If, however, these patients remain in a cold country, their respiratory organs are ultimately destroyed by the action of the oxygen.<sup>1</sup>

From the preceding remarks may perhaps be deduced some general principles by which the beneficial action of climate in tuberculous disease should be regulated. As respects the climates of particular localities, frequented by patients labouring under pulmonary disease, there exists a considerable variety, a knowledge of the peculiarities of which would best enable the practitioner to determine as to the one most likely to meet the indications in any given case. It is foreign to my purpose to give a detailed account of the places most commonly resorted to on account of their climates; but the following brief notices may serve to convey a general idea of the leading features by which some of these climates are distinguished from each other. Climates may be divided into two opposite kinds, between the extremes of which there exist several intermediate gradations, viz., the warm, dry, exciting climates, and the warm, moist, and sedative climates. Egypt, the southeast coast of Spain, Nice, and Naples may be mentioned as specimens of the former, though greatly varying from each other, with respect to the degree of warmth, equability, amount of rain, &c. The West Indies, the island of Cuba, and in Europe, Pau, Pisa, Rome, certain localities of the south and southeast coast

<sup>1</sup> *Chimie Organique*, Paris.

of England, and the Isle of Wight, may be regarded as types of the second, and would, as has been already observed, be applicable to a class of cases to which the former might be unsuited. It must, however be borne in mind, that many patients would derive advantage from one or the other of these kinds of climates taken indiscriminately, solely on account of their passage from a cold and humid atmosphere to one warm and drier, but it by no means follows from this, that a greater amount of benefit would not be obtained from the one than the other, when after an investigation into the circumstances of any given case, due discrimination is made in the choice of a winter residence. Thus a patient might be benefited by a residence for a period in Rome or in Palermo, though the climates of these two places differ materially in their nature, and yet in his case the climate of the one might be more particularly indicated than that of the other. Again, as I have already had occasion to remark, a change to a climate of a somewhat different character, may be advisable, in the course of a single winter, either on account of the climates of places undergoing considerable changes in the course of these six winter months of the year, or on account of the prejudicial effects which result in some cases from a too prolonged stay in the same kind of climate, even though it may have at first proved favourable.

Although winter is the season of the year when attention to climate is more imperatively required, on the part of invalids labouring under pulmonary disease, yet the choice of summer places of abode is highly important, though too often but little considered; most patients, instead of seeking an appropriate locality where they might probably be making progress towards recovery, being satisfied with remaining stationary at this season. It is true, that as far as mere temperature is concerned, provided the heat be not so great as to relax the system, many places in which a residence would be prejudicial in the cold season (as the patient's own home), might suit very well in the summer; but in general patients would derive advantage from passing at least some weeks at places which contain mineral springs of a character suited to their cases, where the air is generally pure, and where they would meet with mental recreation.

Mineral waters taken internally, and used in the form of baths, vapour, &c.—when there exists no positive counter-indication—powerfully conduce to improve the mass of blood—when vitiated from any cause—not only by means of the derivation produced towards the skin, but likewise from the absorption of their constitutional principles; and their action upon the system brings patients under the most favourable conditions for deriving permanent advantage from the influence of climate, at a later period of the year.

“Mineral waters,” says M. Baumès, “can alone produce in the economy general effects which profoundly modify morbid diathetic states. In fact, the excitation usually induced by those waters, the increased activity of the exhalant and secreting functions of certain textures or organs which are more especially charged with relieving the economy of the mineralizing principles which they introduce into it; the interstitial absorption which is likewise rendered more active in textures, and is brought into due relation with the increase of the exhalations and secretions; these are powerful modifications imparted to the nature of different morbid states. This, added to suitable exercise in the open air, which is generally pure, and to a regimen which is often altogether different from that which the patient had been pursuing at home, are hygienic circumstances which cannot but ameliorate the composition of the blood, and profoundly modify the vicious tendencies of vegetative life—on the one hand destroying or diminishing the habit of fluxionary movements inherent in the

diathesis; on the other, preventing these movements from assuming a fatal form. If to the internal use of mineral waters, be added their external employment in the form of bath, vapour bath, &c., we shall obtain, independently of the effect of their absorption by the skin, the last powerful modification which these agents are calculated to produce on the cutaneous functions, viz., increase of the insensible perspiration and sweat, which are true depuratory discharges. The tendency to internal flexionary movement is destroyed by their being directed to the skin in the increased activity imparted to a normal function." "Climates," likewise observes this author, "exert upon the appearance, development, progress, and termination of the diatheses, a well-known influence. The transition from one climate to another singularly modifies the course of diatheses. It is generally in an unfavourable sense that this modification takes place on passing from a warm to a cold, and especially to a cold and damp climate, and favourable on passing from the latter to the former.

"Many diatheses are remedied by the action of a warm climate, because the organism naturally tends to release itself from the germs of disease which oppress it; to impart a more favourable direction to noxious vital concentrations and to fluxionary movements established in internal organs, especially when it is placed under the most favourable conditions for promoting the activity of the vital actions of exhalation and secretion, which are effected by the skin."<sup>1</sup>

Except in as far as they are connected with climate, it is foreign to my purpose to enter upon the consideration of the action of mineral waters in pulmonary consumption, to which, in an advanced stage, they are but little applicable; but at an early period of the disease, when the object sought to be attained is a cure by improving the condition of the blood, this may be best effected, in some cases, by gaseous chalybeate waters, when tonics are not contra-indicated—in others by alkaline thermal, or by sulphurous thermal waters. Of the continental alkaline springs, which enjoy a considerable reputation in diseases of the lungs and air-passages, may be particularly mentioned those of Ems, which are more especially indicated in cases where a sedative action is required; to this effect the climate of the valley in which the village is situated conduces, being in summer warm, and somewhat relaxing. The saline waters of Mont d'Or, in France, have likewise for a long period enjoyed much reputation in consumptive complaints. These springs rise in a mountainous district, at a considerable elevation above the sea, and as respects climate, the place is altogether under opposite conditions to those of Ems, the air being cool, and even at times cold in summer, and subject to great variations of temperature. Rain likewise frequently falls at this season. The principal part of the treatment consists in effecting a powerful derivation on the skin; copious sweat being produced after each bath. The physician inspector in his report speaks highly of the results of this treatment in cases of chronic bronchitis, and in the early stage of pulmonary phthisis, and I experience no difficulty in crediting his assertions, the principles of the treatment being in accordance with those which I have advocated as being most calculated to procure the removal of tubercular cachexy.

Several of the sulphurous springs which rise in the French Pyrenees have likewise been a good deal used in cases of consumption in its different stages. Sulphur taken internally, and absorbed by the skin, constitutes one of the best remedies for diseases depending upon an abnormal condition of the blood, which it tends to purify by directly inducing beneficial changes in its com-

<sup>1</sup> Baumès, *Traité des Diatheses.*

position, as also by increasing the activity of the capillary circulation and of the cutaneous secretions. Among the most celebrated of these waters, are Bagnères-de-Luchon, Cauterets, and the Eaux Bonnes; of these, the latter are most frequented by patients labouring under pulmonary disease. This bath is situate in the mountains, at an elevation of 2,300 feet above the sea's level; the air is pure, though but little agitated by winds, on account of the lofty mountains by which it is almost entirely surrounded. "The climate," says Dr. Taylor, of Pau, "is more sedative than that of other *sulphurous* baths of the Pyrenees, which circumstance, joined to the unirritating quality of the waters, constitutes an efficient remedy, even when the lungs are diseased, by allaying pulmonary irritation. The Eaux Bonnes may be taken, notwithstanding the presence of urgent chest symptoms, in cases where under similar circumstances we would not dare to prescribe the waters of Cauterets."<sup>1</sup>

That many patients affected with phthisis derive great advantage from their sojourn at the Eaux Bonnes in the summer season, cannot reasonably be doubted. I have known some, with considerable disease of the lungs, who have been greatly benefited; but these waters are the least sulphurous of all those of the Central and Western Pyrenees; they are not used in the form of bath, and the doses which the inspector prescribes rarely exceed three or four glasses daily. Under these circumstances, I have no doubt that too much has been ascribed to the action of the waters, without sufficient account having been taken of the effects which must necessarily be produced upon the system in general, and upon the state of the blood in particular, by patients living in a pure and rarefied air, at a considerable elevation, and in a sheltered position, during several weeks of the most favourable season of the year.

At Cauterets, baths and half baths are frequently combined with the internal use of the water, in cases of pulmonary disease. By these means a revulsive action is produced upon the surface and upon the lower half of the body, to which much of the benefit derived from these waters is ascribed. Cauterets lies 3,000 feet above the sea's level. Its atmosphere is more invigorating than that of the Eaux Bonnes, and is consequently well calculated to remedy a state of tubercular cachexy when not too far advanced.

Bagnères-de-Bigorre occupies a delightful situation in the plain at the foot of the mountains, not far from the other Pyrenean baths. Its climate is of a sedative nature, and, though often producing a depressing effect upon persons in health, it is well suited to many consumptive patients in whom there exists a state of general or local excitation. In this respect, Bagnères presents a contrast to Capbern, which is situate a few miles distant, on elevated ground, and where the air, without being sharp, as is the case with the baths placed on a higher level, is yet pure and bracing. The waters of these two baths are slightly saline, and are not calculated to be of material service in cases of pulmonary disease.

Many delicate persons, as also several of those in whom there exists a predisposition to phthisis, but who do not experience inconvenience from slight atmospheric variations, would find the coasts of the North Sea or of the Atlantic not unsuited for a summer residence—as Biarritz, Dieppe, or Boulogne, in France, Brighton, and other places of resort on the shores of England.<sup>2</sup> In

<sup>1</sup> On the climate of Pau, &c., London.

<sup>2</sup> A young clergyman, with a slight degree of tuberculization of the lungs, whom I recommended, last summer, to use one of the sulphurous waters of the Pyrenees, and to pass the winter in Italy, became so much worse at Pau, that he was pronounced

some cases, where there is a sufficient amount of strength, for invalids to undertake excursions, on foot or horseback, in a mountainous and diversified country (as Switzerland or Scotland), would be attended with advantage.

5. *Conclusions.*—It appears to me, from what has preceded, that we are authorized to adopt the following conclusions :—

1. Tuberculous disease of the lungs is curable in an indefinite proportion of cases, which proportion would doubtless be greatly increased by the more general employment of climate, and other hygienic and remedial means, to which recourse has been had up to the present time, only in exceptional cases, frequently when the disease has arrived at too advanced a stage to derive permanent amelioration from the use of any means. Even when a cure is not practicable, the progress of the organic lesion may often be arrested or retarded by the suitable employment of these agents.

2. The formation of tubercle depends, most probably, upon an impoverishment of the blood, characterized more especially by a diminution of the normal amount of its globules, together with an alteration in its composition; occasioned chiefly by deficient activity of the skin—considered as an excrementitious organ—whence substances are retained in the blood which ought to be eliminated from it, some of which, chemical analysis has detected the existence in tuberculous matter—and also as a supplementary organ to the lungs in the function of respiration.

3. Statistical documents, as well as the investigations of impartial observers, have shown that pulmonary consumption occurs, much more frequently than elsewhere, in countries and localities where a humid state of the atmosphere predominates, and also that it prevails chiefly among those classes of the population who are most exposed to this and other influences which tend to depress the vital powers—particularly the activity of the capillary circulation—and, consequently, to vitiate the blood by suppressing the cutaneous transpiration (sedentary mode of life, prolonged anxiety, grief, and other depressing emotions, &c.).

4. On the other hand, tuberculous diseases are of comparatively rare occurrence in cold and dry climates where the energy of the circulation, and of the cutaneous functions, is maintained by the substantial food, and by the active mode of life, of the inhabitants, which suffices to preserve them, in great measure (as respects pulmonary consumption), from the pernicious effects of the inclemency and variations of the weather to which they are continually exposed. Consumption is likewise rare in warm and dry countries where the inhabitants live a good deal in the open air, and where the insensible perspiration is kept up, without muscular effort, by the influence of the climate. On the other hand, it is frequent among the natives of several countries where the climate is hot and moist (the West Indies, &c.), on account of the relaxation of the system, and of the repression of the insensible perspiration, produced by the combined agency of heat and moisture.

5. In some localities favoured in point of climate, though tubercular phthisis is seldom met with among the inhabitants in general, it may never-

by two physicians to be in an advanced stage of phthisis. On arriving at the Eaux Bonnes, he had great weakness, incessant cough, bloody expectoration, fever, and sweat, every evening. He got somewhat better in the course of a fortnight, when his relatives removed him to Biarritz. On passing through Pau, he again suffered from the depressing effects of its atmosphere, but, after a short sojourn at Biarritz, he improved so greatly as scarcely to be considered an invalid, and, except on very boisterous days, was able to take daily exercise out of doors, at the end of November.

theless be tolerably frequent among those of the lower orders who are exposed to the influence of the anti-hygienic causes which mostly tend to induce tubercular cachexy in all countries. Many individuals, in such localities, as well as soldiers serving at stations where the mortality from consumption is small among the general population, nevertheless die from diseases of the organ of respiration simulating phthisis, which are often erroneously considered as such.

6. The chief indications in the treatment of pulmonary tuberculization by means of climate, are, first, to remedy as far as possible the morbid condition of the blood, which constitutes the cachectic state, and, by this means, to prevent or to arrest the formation of the morbid product; and secondly, to allay the general and local excitation occasioned by the organic lesion. These indications are not unfrequently opposed the one to the other, and in many cases the practitioner is obliged to restrict himself to endeavouring to fulfil the second, and to palliate the symptoms by pharmaceutical remedies.

7. Change of air, and a residence, more or less prolonged, in warm countries during the winter—the selection being determined by the particular circumstances of individual cases—ought to be considered as the means best calculated to fulfil the first indication, and should be recommended in all chronic cases as early as possible.

8. The beneficial influence of climate in arresting the progress of pulmonary tuberculization, would be so much the more marked in proportion as the disease is recent, and as the patient could be the more speedily removed from the influence of the causes which may have contributed to produce it.

9. The localities which would generally be best suited for the winter residence of patients labouring under pulmonary phthisis, in the early stage, are those which, together with a suitable climate, possess resources for mental occupation and diversion, which would induce them to pass a great portion of their time in the open air, avoiding, however, occasions of fatigue.

10. A prolonged residence in any place where the temperature is very equable and the atmosphere calm, is not advantageous to patients when it is a question to procure the restoration of the blood to its normal state. On the contrary, a moderate agitation of the atmosphere is favourable to them by exciting the insensible perspiration, and by making them, so to speak, breathe by the skin as well as by the lungs.<sup>1</sup>

11. The choice of a climate should be determined by the patient's temperament, the condition of the system, and the more or less advanced state of the disease. In general, warm and dry localities best suit persons of a lymphatic or scrofulous constitution where the circulation is languid; these are, on the other hand, often too exciting for individuals of a sanguinary or nervous temperament, in whom there is irritability of the air-passages, a disposition to inflammation or to hæmoptysis, with acceleration of the circulation. Such patients would more frequently find themselves better where the atmosphere is somewhat moist, not liable to great transitions, and of which the action is consequently sedative.<sup>2</sup> A similar climate is likewise better adapted to pa-

<sup>1</sup> An attaché to the British legation, at Turin, presenting all the signs of tubercular cachexy, was remarkable, at Nice, four years ago, for the hardihood with which he exposed himself, with his neck almost bare, to the vicissitudes of the atmosphere. Last year, I saw him at Frankfort, to which place he had been transferred, and where, notwithstanding the severity of the winters, he enjoyed good health.

<sup>2</sup> A young officer of nervous temperament became consumptive, in consequence of fatigue and exposure to damp, while at the camp at Chobham. He was sent to Malaga, where I saw him. He had the characteristic pallor of the diseased condition of

tients in the more advanced stages of the disease, when it is deemed advisable to recommend them a change of climate.

12. Most persons with pulmonary consumption, who are natives of northern countries, would be benefited by a residence, during a part or the whole of winter, in a warm climate, even though it were humid—provided the disease were not too much advanced—from the mere passage from a cold to a milder temperature. Many patients, in whom there exists a state of general or local excitation which requires the employment of sedative remedies, would derive permanent advantage from the action of a warm and moist atmosphere, which would tend to allay irritation and diminish the amount of bronchial exhalations; but the too prolonged influence of such an atmosphere, by relaxing the system, would render most patients liable to an aggravation of the disease, if, on changing the place of their abode, they exposed themselves to the action of a climate having a different character, or of any of the accidental causes of the disease.

13. In many cases of incipient tuberculization, in order to derive all possible advantage from the influence of climate, we should, so to speak, regulate the doses either of stimulation or of sedation. As the sedative action of an equable temperature and a moist atmosphere would, in many cases, be advantageous up to a certain point, and afterwards prejudicial; so, in like manner, that of a dry and exciting climate, which may at first have been favourable, when too much prolonged, not unfrequently causes an aggravation of the symptoms, and sometimes a state of general irritability, which, notwithstanding the use of remedies, persists or increases, unless the patient be transferred to a climate more suited to his actual state; which, however, is frequently not practicable.

14. Among the climates most in repute for their efficacy in retarding the progress of pulmonary consumption, there exists a considerable variety with respect to equability of temperature, the state of dryness or moisture of the atmosphere, the degree of warmth, etc. The climates of Upper Egypt, the southeastern coast of Spain, are the most remarkable for their warmth and equability in winter, as well as for the dryness of their atmosphere. To these climates, Hyères, Nice, Menton, Malta, and Naples, approximate nearest as respects dryness, though differing materially in other respects. The West India Islands and Cuba may be mentioned as a type of hot and moist climates. Among the intermediate climates characterized by variable degrees of warmth, equability, and humidity, are Madeira, Algiers, Pau, Pisa, Rome. The three latter have a sedative action, often depressing the vital powers of persons in health, as well as of many invalids.

15. The atmosphere of marshy localities, where endemic intermittent fevers prevail, is neither preservative nor curative of pulmonary consumption, as has been supposed by some physicians, this disease being tolerably frequent in many of these localities.

16. A residence in the places whose climates are best suited to the particular cases, exerts not only a directly advantageous influence in arresting or

the blood, hectic fever, and night-sweats. The pulse was quick, and the cough almost constant. Auscultation indicated the presence of tubercles disseminated throughout the lungs, rather than agglomerated in a limited portion of them. The disease made rapid progress, and he died in the course of a few weeks. On the other hand, a young lady of lymphatic temperament, having tubercles in a quiescent state, in the summit of both lungs, derived great advantage from the climate of Malaga, and was able to pass the last winter in England, being, according to the latest accounts, greatly better in health.

retarding the progress of the disease, but likewise, inasmuch as patients are thereby placed under the most favourable hygienic conditions, for promoting the efficiency of remedies which would otherwise be inefficacious.

17. Sea-voyages are often beneficial in the early stage of pulmonary tuberculation, when patients do not labour under urgent symptoms; when the strength is not much diminished; when they have a taste for voyages, and are not likely to be prejudicially affected by the monotonous mode of life usually led at sea, and provided there be no grounds for apprehending the exhaustion frequently produced by sea-sickness in long voyages.

18. The advantage which patients sometimes derive from sea-voyages mainly depends upon the continued renovation of a pure air, which acts as a tonic, promotes the insensible perspiration, and the activity of the other functions of organic life. The saline impregnation of the sea air may possibly somewhat conduce to its strengthening effects, though it has not been demonstrated that a residence near salt-works, and the inhalation of an air strongly impregnated with saline vapour, has been followed by special beneficial effects in cases of consumption.

19. Land travelling through an agreeable country is better suited to consumptive patients in general than are sea-voyages, because, in addition to the effects produced by renovation of the air, it acts in a favourable manner on the *morale* of those invalids in whom it does not occasion too much fatigue; it can be undertaken in the society of parents or friends; those who travel by land can stop where they please, and they have within reach the medical assistance which their cases may require. It is only, however, when land travelling is undertaken in suitable weather, and by easy stages, that it can be expected to be attended with benefit, and with comparatively little risk.

20. The climate of several places possessing mineral springs is very favourable to many patients affected with tubercular disease, in the summer season. The operation of appropriate mineral waters—when these agents are not contraindicated—powerfully tends to improve the quality of the blood when vitiated, and to increase the activity of the various secretions, especially those of the skin. It imparts a salutary impulsion to the movements of the economy, and prepares patients for deriving the greatest possible advantage from the influence of a suitable winter climate.

APPENDIX.—*Notices of some of the Places most frequented on account of their Climates, in the South of France, Italy, &c.* The following brief notices of the leading peculiarities by which several places of resort are characterized, are derived in great measure from my own observation, and from the information acquired from local authorities and other available sources during the periods of my residence there. They may perhaps suffice to indicate in a general way, and in the absence of more detailed accounts, the localities suitable to many patients labouring under tuberculous disease.

*Pau.*—Pau presents many advantages as a winter residence for several invalids, being situate near the mineral springs of the Pyrenees, where there are always in the summer a great many persons whose state of health requires later in the season the beneficial influence of a mild climate. It is easy of access from the more northern parts of France by means of railroad communication with Paris—brought within a six hours' drive. Occupying part of an elevated plateau, which overlooks a picturesque valley fertilized by the *Gave* or mountain river of the same name. Pau consists principally of a long street terminating near the old castle—celebrated for its historical associations—of short divergent streets, and two Places, of which the one (Henri IV.) is

very large, the houses being built on colonnades ; the other (Royale) has only houses on three sides, the fourth forming a terrace facing the south, whence a rich and varied panorama is displayed to the view, encased towards the south by the chain of the lofty Pyrenees, and on the southwest by the verdant slopes of Carançon. The town is lighted with gas ; it possesses a public library, a *cercle* where the principal French and English papers are received, libraries for the loan of books, and a theatre. There is an agreeable, though not *bruyante* society in the winter season. The population amounts to about 14,000 souls. A park wall, sheltered by lofty trees, extends from the chateau to the distance of half a league parallel with the valley, and at a considerable elevation above it. The environs are extremely interesting, and the roads are maintained in a good state. Riding is very general among the visitors.

A prolonged sojourn at Pau would, however, not unfrequently have a depressing effect upon persons out of health and unable to take part in the pleasures of society, as, except the salons of the *cercle*, there is no place of *reunion* in the evening, or for exercise in bad weather, and it rains a great deal at Pau ; so that persons in health, and more especially invalids, are often deprived of the source of outdoor exercise, and are obliged to confine themselves to their apartments.

The climate of Pau is relatively mild, less warm than that of Provence, but also less liable to great variations of temperature. It is milder, and, at the same time, on account of its elevated position and the absorbent nature of its soil, less humid than the other towns in that part of the country.

It is sheltered on the north by the Landes of Pont Long, which gradually ascends in that direction to a distance of five or six leagues.

High winds seldom occur, and are but of short duration. A principal characteristic of the climate is the calmness of its atmosphere. Sir James Clark, in his work on climate, states the mean annual temperature to be only four and a half degrees higher than that of London, and five lower than Marseilles, Nice, and Rome. In winter, it is two degrees warmer than London, six colder than Nice and Rome, and eighteen (Fahrenheit) colder than Madeira ; but, in spring, Pau is six degrees warmer than London, and only two and a half colder than Marseilles and Rome. The daily range of temperature at Pau is seven and a half degrees, at Rome eleven. Schouw, in his meteorological tables, states 135 as the mean of rainy days in the year ; and Dr. Taylor, in his work on the climate of Pau, admits that the amount of rain is as great, if not greater, than in London. Rain seldom, however, continues for more than two days at a time, the ground dries rapidly, and the atmosphere generally is but little laden with moisture. The west wind blowing directly from the Atlantic is accompanied by rain. The wind from the northwest, and from this point to the northeast, brings dry cold weather ; while that from the northeast to the south is usually attended with clear mild weather. The south and southwest winds are warm and oppressive. The westerly, or Atlantic, are the most prevalent winds. The north wind is not frequent, and blows feebly. Dr. Taylor contrasts the climate of Pau with that of Nice as being of a directly opposite nature. "It has the effect of diminishing the nervous energies, and of inducing nervous congestion in internal organs. Strangers in health complain of languor and indisposition to exertion, a feeling of fulness in the head, and oppression at the epigastrium. Hence, in all diseases of an atonic character, in a depressed and relaxed state of the nervous system, and in congestive diseases, the climate is injurious." It is, on the other hand, beneficial in many chronic affections of the larynx,

trachea, and bronchia, of an erethetic character. As respects patients labouring under tubercular disease of the lungs, though the climate of Pau may be less calculated than one of a different nature to fulfil the indication of ameliorating the abnormal condition of the blood, it would be well suited to allay irritability in patients of a sanguineous or nervous temperament, with marked acceleration of the circulation, to whom a prolonged residence in warmer or drier climates would be too exciting or enervating, and who do not require in the place of their abode much variety of resources for occupation or recreation.

*Hyères.*—The aspect of the greater part of Provence is rather dreary and monotonous from the comparative deficiency of trees (except the olive) and of vegetation, consequent upon the dryness of the climate. The heat in summer is almost unbearable; the roads are thick laid with dust, which, during the prevalence of winds, is raised in clouds. Though the temperature in winter as marked by the thermometer, is not low, the air is sharp and often cold, the strong northwest wind (*mistral*) is not unfrequently painfully experienced, especially in January, February, and March. In spring the sun acquires great power, and its influence alternating with the occasional cold winds produces frequent and rapid changes of temperature, very trying even to those in health. The rains fall at irregular periods, last during several days or weeks, leaving a long interval of fine weather, during which the sky is bright and clear. The best seasons for residing in this part of France are from April to the middle of June, and from September to the end of November.

Hyères presents an exemption from some of the disadvantages of the general climate of Provence. It is about an hour's drive from Toulon. On approaching through olive plantations and vineyards, the attention is attracted by the extensive ruins of its ancient castle and walls, crowning the hill at the base of which the town lies, and by which it is sheltered from the north. Passing in front of the large hotel *Iles d'Or*, the chief street being the high road to St. Tropez, is traversed. About the centre is a terrace, with five magnificent palm-trees, commanding a delightful view of the plain, with its rich and varied vegetation of olives, oranges, palms, cypresses, &c., extending to the sea, which is four or five miles distant. The islands of Hyères, about two leagues from the Roie, add to the beauty of the scene. Opposite the terrace is a small library, but indifferently provided with books, and adjacent are the two other principal hotels, *De L'Europe* and *Des Ambassadeurs*. In the former is a saloon appropriated to the *cercle*, where the leading French journals are received. At the extremity of the street is a Place of very ordinary appearance. The divergent streets are narrow and badly paved. The resident population amounts to 10,000 souls.

The lodgings and general accommodations are inferior to those found in most places of resort, and the sheltered space for outdoor exercise is but limited. Though protected from the north winds, which are severely felt in the neighbouring districts, Hyères is a good deal exposed to the *mistral*, which prevails more especially during the latter part of the winter and in early spring.

The only medical accounts published of late years is that of M. Honorates, who admits that the town is exposed to the northwest, and says, moreover, that it is not sufficiently sheltered from the east. The orange and lemon-trees are smaller than at Nice. Rain in autumn and fogs are not unfrequent. In winter there is a long succession of fine weather. The temperature is not subject to so much variation, and there is less difference between the sun and

shade than at Nice. The number of rainy days is said to be not more than forty in the year.

The climate of Hyères is well adapted to many cases of pulmonary consumption, on account of the purity and dryness of the air, which is less agitated by winds than that of places directly lying upon the sea slope. The want of promenades and of resources, as well as the inferiority of the accommodation, will, however, be sufficient inducements for those persons to whom this kind of climate is applicable, to prefer Nice. Those who seek repose, and who purpose wintering at Hyères, would be less exposed to wind if lodging near the terrace, and eastward than at the entrance of the town.

The small town of Cannes, on the opposite side of the Estrelles (part of the maritime Alps) has been a good deal frequented of late years by those desirous of a quiet winter residence in a mild climate. It is sheltered from the *mistral*, though somewhat exposed to the east. It lies on the high road to Italy, and has a population of 4000 souls. The environs are agreeable, though having only lately come into notice, Cannes is very deficient in accommodation.

*Nice.*—Nice, in the Piedmontese territory, occupies a picturesque position on the sea-shore, about a league distant from the French frontier; it possesses a population of 40,000 souls, independently of a large garrison. The greater part of the town is separated from the port by a rocky hill, rising precipitously from the sea, and surmounted by the ruins of a fort. A parapeted road, cut round the rock, at some elevation above the sea, forms the principal means of communication between the two ports. The Place Victor, a spacious square, and some new streets, lie to the north of the port; the old town and the new streets, inhabited by visitors, to the west. The streets of the old town are lined with shops, and, with one or two exceptions, are not wide enough to allow the passage of a carriage. The Corso, a public promenade parallel with the sea and planted with trees, and the adjacent streets, contain some good houses, which are let to visitors. A long range of low buildings, consisting of shops and cafés, separates the Corso from the beach. Their flat roofs form spacious terraces, extending from the Castle Hill to the Boulevard du Midi, which is the usual afternoon promenade. A river, or rather the dry bed of a river (the Paglion) forms the limits of the town on the west. The houses on the opposite quay are (next to those on the Boulevard du Midi) most sought after; here are the principal hotels. Beyond this quarter is the suburb of the Croix de Marbre, which extends a considerable distance westward along the high road to France, and contains several large houses, to which orange gardens leading down to the shore are attached. A promenade (Chemin des Anglais) is continued along the beach close to the garden wall.

The environs of Nice are delightful; the soil is extremely rich in vegetable productions; various kinds of flowers, the olive, pomegranate, lemon, orange, almond, and fig, grow luxuriantly. Upon the top of the Castle Hill a charming prospect is presented of Nice, with its numerous villas, gardens, orange plantations and olive-clad hills, its beautiful bay, and the lofty mountains which shelter it from the north, and to which it owes its advantages of climate, while immediately beneath, the houses of the old town, thickly clustered together, contrast pleasingly with the beauties of the scenery by which they are surrounded.

Nice presents a good many resources for occupation and amusement. There is a *cercle* with a good library and reading rooms (the principal French,

English, and Italian papers being received), rooms for cards, &c., and concerts; two good libraries, with reading rooms, Visconte's establishment, a tolerable theatre where Italian operas and French dramas are represented. The Church of England service is performed by a resident clergyman, before a tolerably numerous congregation. Excursions are frequently made on donkey or horseback among the hills and valleys of the neighbourhood, and to more distant points, among which may be particularly specified, Villefranche, which is separated from Nice by a steep hill. The little town is almost surrounded by olive-covered hills, and being sheltered from all cold winds, its climate is warm and equable. It possesses a spacious harbour which can admit the largest vessels; but there is no accommodation for visitors.

Nice has long been resorted to by invalids, for the sake of its winter climate, which differs materially from that of Provence, inasmuch as it is less dry, and is sheltered from the north winds and from the *mistral* by the maritime Alps, and the Estrelles, which terminate at the sea westward; but still it is at times, especially in spring, liable to cold winds, and to the transitions which, without great precautions, render a residence in the south of Europe not unattended with danger to invalids. Hence much discrimination is required in the selection of cases likely to be benefited by its climate, as also in the choice of a residence, and as respects the proper period of remaining there. The season at which the greatest amount of rain falls (autumn) is generally over when strangers begin to arrive; and the months of November, December, and January are usually fine and warm, the temperature being seldom lower than 45 degrees in the daytime, and sometimes as high as 60 in the shade. The sky is mostly cloudless, of a deep blue, and the sun is often powerful in the middle of the day. The general character of the air is light, dry, and exciting, and the climate is consequently suited to most persons of a torpid or relaxed habit. Cold winds occasionally occur in these months, but are most felt in the spring, when they occasionally blow sharply over the mountains, at that period still covered with snow, while, at the same time, the sun acquires great power, rendering the climate extremely trying to invalids labouring under disease of the lungs and air-passages.

The mean temperature may be estimated as follows: winter, 7.7; spring, 14.4; summer, 18.6; autumn, 10.3; that of the year being 12.7 (Reaumur). In winter there is a difference of from 12 to 24 degrees between the temperature of places exposed to the south and the north, between those in the shade and in the sun, and especially between those sheltered spots and those which are freely exposed to the air, or in the shade.

The most frequent winds at Nice are the southeast, the north, the east, and northeast; the rarest are the west, the north, northwest, west-southwest, south-southeast, and south-southwest.

"The greatest quantity of rain," says the local writer from whom the above statement is taken, "may be estimated at 43 inches in the year; the smallest at 16, the mean quantity at 26. The maximum and minimum of rain which falls in the four seasons is usually in the following proportions: winter, from 4 to 7 inches; spring, 4 to 8 inches; summer, 2 to 7, and in autumn, from 6 to 10. It is by no means a rare occurrence to see fall at certain periods of the year, especially at the equinox, great and continued rains, producing five cubic inches of water in less than twenty-four hours. The mean of rainy days in the year is 30."<sup>1</sup>

From the general remarks on the effect of climate it may be inferred that

<sup>1</sup> Roubandi. Nice et ses Environs.

the winter climate of Nice, or of its environs contrasting forcibly with that of the countries in which tubercular cachexy is most frequent, would tend to accomplish in many cases of incipient consumption, or of a predisposition to the disease, the objects chiefly sought to be attained by means of this remedial agent in favourably modifying the abnormal condition of the system. The sunshiny days, the purity and relative dryness of the air, the variety of the scenery in the environs, the cheerful society met with, presenting many inducements to invalids to be much out of doors, cannot fail to produce a beneficial influence upon their physical state and mental disposition.

The climate is more especially indicated in cases where the patients are of a lymphatic or torpid habit, or where a scrofulous constitution is connected with tubercular disease, who are not very susceptible to be affected by atmospherical variations within a moderate range. To patients of an excitable temperament, or where there exists much irritability of the respiratory organs, with a tendency to recurring hæmoptysis, it would generally be prejudicial, though to many patients with whom a residence in the town or suburb near the sea would disagree, the more sheltered and equable climate of the villas under the hills of Cimiez or Carabacel would not be unsuited.

It is advisable for most invalids with pulmonary disease, not to remain at Nice throughout the spring, but to proceed further into Italy, or to some more suitable climate, or if remaining, to reside in one of the more sheltered localities of the environs.

*Menton.*—About five hours' drive from Nice on the Genoa road is Menton, which is remarkable for the mildness and equability of its climate. It consists principally of a street along the shore through which the road passes, inhabited by shopkeepers and artisans. Possessing no resources for occupation, notwithstanding the beauty of its site, Menton is only occasionally visited by invalids.

Foderé, in his *Voyage aux Alpes Maritimes*, said of it: "The country is beautiful, the climate mild, the inhabitants well-mannered, yet after having seen the little there is to see, one feels a strong desire to go further on."

Though having a southern aspect, and being exposed to the sun's influence during the greater part of the day, there are but few houses where strangers could be accommodated.

Several patients after wintering at Nice, and desirous of seclusion, might pass with advantage a few weeks in the spring at Menton, in one of the hotels, where the accommodation is tolerable. The climate would be best suited to persons suffering from pulmonary disease in an early stage, accompanied with great susceptibility of the air-passages to atmospherical variations; though to some of these patients where the circulation is accelerated, and the cough and dyspnœa are urgent, a more humid atmosphere would be better adapted. In many cases, on the other hand, the warmth of Menton, and the comparative deficiency of free ventilation, would be attended with enervating effects, as may be inferred from the general appearance of the natives, who are for the most part of an indolent or lymphatic temperament, with a tendency to *embonpoint*, and of placid disposition.

*Pisa.*—About five leagues distant from Leghorn—fifteen from Florence (with which cities it is connected by rail)—and two from the sea, Pisa lies, in an extensive, plain, which after heavy rains is partially covered with water, on which account intermitting fevers were formerly prevalent; of late years, however, drainage has improved the salubrity of the district.

The town is of considerable extent, being inclosed by high walls, and is divided into two unequal parts by the Arno, which flows through it with a semicircular bend. The quays are handsome, the streets wide, clean, and, as in most towns of Tuscany, are paved with flag-stones. When formerly the capital of a republic, the population amounted to 150,000 souls; it does not, however, now exceed 20,000, which circumstance imparts to the town a melancholy and deserted aspect. Three stone bridges cross the river. The principal movement is along the northern quay (*Lung' Arno*), which has a southern exposition, and is the only part where invalids reside. Pisa possesses an Academy of Arts, a university, a large public library, subscription reading room, and a handsome theatre where operas are given. It is, however, but indifferently provided with promenades, with the exception of the *Cascina*, an extensive park two miles distant, with fine avenues of oak and poplar-trees.

Pisa is in great measure sheltered from the north and east winds, by a range of mountains which rise some miles off to an elevation of 3000 feet. The winter climate is considered, next to that of Rome, the mildest and most equable in Italy. The plain being fully exposed to the southern winds blowing from the Mediterranean, and over marshes, the sirocco is at times unpleasantly felt. Rain is more frequent than in most towns in Italy. The quantity has been estimated at nearly as much as falls in the rainy county of Cornwall. It must, however, be borne in mind, that as the rain falls in large quantities at a time (great part in autumn), the weather is less variable than in England, and longer intervals of fine weather occur. Rain falls on an average on 160 days in the year. The concave bend of the *Lung' Arno*, concentrating the sun's rays, includes a climate peculiarly warm, differing by many degrees from that of other parts of the town, where cold winds are often severely experienced, especially in the early part of spring. The mean winter temperature is 7.82 (centigrade scale), spring 14.82, autumn 17.31. The general temperature of Rome is somewhat higher in winter than that of Pisa, but much lower than that of the *Lung' Arno*. In spring Pisa is better sheltered from cold winds than Rome; the winds most prevalent at Pisa being the west, south, and southwest, which last is usually charged with moisture. This kind of climate agrees well with many patients suffering from pulmonary disease, having the character of excitability, and is therefore opposed to that of Naples or Nice, which is better suited to the chronic forms of disease where there is but little irritability of the air-passages. Invalids would, however, often come depressed in spirits from a prolonged sojourn in Pisa, on account of the dulness of its aspect, and the few resources which it presents. A few weeks in the spring are not unfrequently advantageously passed at Pisa, by persons who have been remaining great part of the winter at Nice, and who thus partly avoid the cold winds which prevail at that place without being sufficiently long in Pisa to be affected by the more relaxing influence of its atmosphere. For those who, together with a mild climate, require recreation and amusement, Rome is preferable, though many find Pisa agree better with them for a prolonged sojourn than the calmer air of Rome.

*Rome.*—The valley of the Tiber is inclosed by two ranges of diverging hills. The mounts Pincian, Quirinal, and Viminal, constitute the eastern limit of Rome; the mount Mario, and the Vatican, which is almost continuous with the Janiculum, forms the limit on the west; whilst on the south are the Aventine, the Capitol, and the Esquiline. The river makes a considerable bend,

of which the concavity is directed towards the Pincian and Quirinal hills; its banks being rather low, the adjacent grounds are not unfrequently inundated after heavy rains; the inundation sometimes extending into the city.

Rome is surrounded by high and massive walls; the streets are for the most part narrow, and are often dirty, except in the neighbourhood of the Piazza di Spagnu, the quarter in which strangers almost exclusively reside. The fixed population amounts to 170,000 inhabitants.

Apartments having a southern aspect are more difficult to be obtained in the circumscribed strangers' quarter, than in other towns in Italy frequented in winter, which, like Nice and Naples, are built along the shore, or like Pisa, where the visitors' quarter on the quay of the Arno, is fully exposed to the solar rays.

It is scarcely necessary to observe that Rome possesses more resources for occupation and recreation than any other place of winter resort. These are, however, not unfrequently detrimental to invalids, who are often induced to do more in the way of sight-seeing than they are able to accomplish without risk, and who are likewise negligent in guarding against the variations of temperature experienced at different times of the day, in cold picture or statue galleries, &c.

The environs afford ample scope for horse exercise, and the principal roads for carriage driving are maintained in tolerably good order.

The climate of Rome is milder, and the winter shorter than in most other parts of Italy. The air is soft, comparatively seldom agitated by sharp winds, and is at times oppressive, especially during the prevalence of the *sirocco*, which, however, agrees very well with many pulmonary invalids. The *tramontane*, or cold north wind, sometimes blows strongly in the winter and spring, usually lasting three days; the neighbouring hills are not sufficiently high to protect the city, and cold winds are the more sensibly felt on account of the general softness and the relaxing qualities of the air, which may be considered humid, as compared with that of the other places of resort in Italy. The most common causes of the moisture of the atmosphere are its state of comparative stagnation; the occasional fogs from the Tiber, and the exhalations from the earth after sunset, which are sometimes so great as to wet the pavement. Within the short space of half an hour at this time of the day, there is a marked difference in the temperature, on which account strangers, and especially invalids, should, when out of doors, be provided with an extra garment.

The mean temperature of the different seasons (by the centigrade thermometer) is as follows: Winter, 8.1; spring, 14.20; summer, 22.96; autumn, 16.40. Sir James Clark (whose tables are computed by the scale of Fahrenheit) states the mean winter temperature to be ten degrees higher than London, seven higher than Pau, and one higher than Nice. More recent observation has, however, shown that the difference between London and Rome is not so great, and that Nice has a winter temperature higher than Rome of more than a degree. In spring the temperature of Rome is five degrees above London, three above Pau, four below Nice, four below Madeira, and about the same as Naples. With respect of steadiness of temperature from day to day, Rome precedes Naples and Pau, but comes after Nice and Pisa. "The inconstancy of the atmospheric conditions," observes M. Carriere, "and a degree of humidity which varies according to the season and the predominance of certain winds, constitute the leading features of the climate. This inconstancy is especially remarkable during the first weeks of winter. At this period the northern winds are in conflict with the southern. Clear alternates with a

cloudy sky, and sun with rain. After December, the northern influences predominate. Cold and dry winds are experienced with a certain continuity, but they do not cause much agitation of the atmosphere, and soon give place to antagonistic or collateral winds. The air is tolerably calm, and the sun shines on most days at the beginning of February. The spring is mild, and the weather settled. October is the favourite month of the Romans; abundant rains water the earth, and reanimate vegetation; the sun shining between the intervals of rain imparts the appearance of a second spring. November retains some analogy with October, being characterized by the alternation of rains with sharp cold.”<sup>1</sup>

According to Colandrelli, the southeast, south, south-southwest, and the west, the warm and cool winds of Italy preponderate in the proportion of 62 to 100. This preponderance of warm winds is, however, far from having an absolute regularity. The southwest wind from Africa (passing over the sea and Albano) is next in frequency to the south, which meets but little obstacle to its passage. Next in frequency is the north-northeast, which enters by the valley of the Tiber; then the southeast, or sirocco wind, which is less felt at Rome than on the Mediterranean shore. The northwest (mistral) which is powerfully experienced in Provence, and in the bay of Naples, presents the weakest proportion at Rome. The east-southeast and south winds favour most the fall of rain.<sup>2</sup>

The average number of rainy days (from observations made during 37 years) is 114. In this respect Rome may be considered intermediate between the Vale of Arno and Genoa on the one hand, and Nice and Provence on the other. A third more rain falls at Rome than at Nicè, somewhat more than at Florence, but much less than at Pisa. It appears also that more rain falls in Rome than in London, where the number of days on which rain falls is on an average 178 in the year; the mean quantity of rain being 31 inches, whereas at Rome it is 29 inches. It must, however, be remembered with reference to the number of rainy days, that small quantities at a time, or showers, are very common in England, whereas at Rome, the rain falls more violently, and in larger quantities, in particular seasons, leaving longer periods of fine weather.

On the whole, Rome may be considered the best winter residence in Italy for those patients labouring under pulmonary consumption in the early stages, who are of an excitable temperament, with a disposition to inflammatory action, and much irritability of the air-passages. To those of a lymphatic or scrofulous constitution it is less suited than a drier and a more agitated atmosphere.

Many patients, likewise, who would derive advantage from a two or three months' sojourn at Rome, would be prejudicially affected by the continued influence of its relaxing climate for five or six months. “The moist air of Rome,” observes M. Carriere, “diminishes and allays pulmonary irritation, but when there is decided exhaustion, it adds to the weakness, and the powers rapidly decline. A residence in Rome is serviceable only in the beginning of the complaint. From the close of winter to the spring is the most preferable period.”

In some cases, as has been already observed, Pisa agrees better than Rome with patients who require a somewhat moist climate. This, however, frequently cannot be known beforehand, until the trial be made. When bronchial or laryngeal inflammation complicates pulmonary tuberculization, the climate

<sup>1</sup> Sur le Climat de l'Italie.

<sup>2</sup> Arinali dell' Osservatorio astronomico.

of Rome will often conduce to its removal, and be productive of permanently good effects.

*Naples.*—Naples has a southwestern aspect. The city is seen to great advantage from the sea; its white houses extending for three or four miles along the shore, and rising on the acclivity of the hill whose summit is crowned by the castle of St. Elmo. The prospect, comprising the island of Capri, Ischia, and Procida in the bay, with Cape Misenum, on the one side, Vesuvius, and the coast of Sorrento, on the other, is generally acknowledged to be the finest in Europe. Most of the houses are lofty, and the streets in the interior of the town are narrow, of which the inhabitants experience the advantage in hot weather from the exclusion of the sun, though the deficiency of ventilation, and the dirt which is allowed to accumulate, are productive of much disease.

With the exception of the Largo del Castello, there are few spacious places or squares; strangers reside almost exclusively in the parts fronting the bay, viz., Santa Lucia, Chiatamone, Chiaja, and Strada Vittoria. The public garden of the Villa Reale extends along the Chiaja, between the houses and the sea, and is prettily laid out, with shrubs, and parterres of flowers. Except this garden there is a great deficiency of shady walks at Naples, which, though possessing the resources of a metropolis, and usually delighting visitors on their first arrival, is nevertheless not in general a favourite place of abode for a protracted period. After its interesting environs have been visited, the city is not found to possess the attractions of Rome, whose neighborhood abounds in walks and drives, in which respect Naples is deficient. The usual drive is along the shore, and the continual view of the bay is not unfrequently, after a time, considered to be monotonous. Neither is the vicinity so agreeable as at Rome, which is also better suited to many invalids, and to persons of a retired or contemplative disposition, than the bustle and animation of that of Naples.

The climate of Naples is drier and more exciting than that of the other towns of Italy; it is likewise more than any other (Florence perhaps excepted) liable to great and sudden variations of temperature, especially at the close of winter and in spring, which produce effects so much the more serious on account of the greater impressionability of the system occasioned by the heat of the sun. The mountains near the town are not sufficiently elevated to protect the city from the influence of winds on the land side, whilst from the sea quarter, great part of it is exposed to the northwest (*mistral*), rendered moist by its passage across the Mediterranean. The thermometer in winter often descends lower than the freezing point, and snow on the summit of Vesuvius is not unfrequent. "The two sections of the shore," remarks M. Carriere, "represent two semicircles, backed by the central parts, and consequently do not partake of the same exposition. Thus the one, that which forms the border of the mountainous region, presents its concavity to the west-northwest; the other more particularly to the southwest. The former is exposed to the mistral, which insinuates itself by the ridges of the northern shore of the gulf, and blows violently upon Pausilippo, the quays of the Mergelline, into the limit of this region. It expires at the detour of the quay of St. Lucia, and at the entrance of the Strada Toledo, it is no longer felt; the long ridge of Pausilippo forms a defence against the north wind, the northeast passes through the passages between Capo di Monte, and Capo di China. The east finds an obstacle in the Somma. The southeast and the south pass over the sea-shore of Vesuvius, or traverse the gulf over the mountains of Costellamare and Sorrento. The scale of the preponderating influence of the various winds may be

thus stated: The southwest, which predominates at Naples, being represented as 5, the south is as 3.5. Compared with the northern zone of Naples, the opposite zone is almost beneficial; the agitation of the atmosphere does not abruptly check by its violence the functions of the skin; it respects the impressionability of the nervous system, and does not affect the thoracic organs."

According to Professor De Renzi, autumn is the season for rain, which falls in the greatest quantity in November and October. In December, north winds preponderate, generally with little rain, the sky being clear. January is even drier than December, but the driest months are July and August, at which times storms are not unfrequent. The southwest wind brings rain; the south and southeast (*ostro e sirocco*) produce very analogous effects upon the body, penetrating it with a warm and invisible vapour, which depresses the muscular energies and the mental powers. The northwest is strongly felt in the Quarter of Sta. Lucea; its force is somewhat moderated on arriving at the Villa Reale, and in the Mergelline.

The frequent variations from dryness to moisture, and from warmth to coldness, promote the disengagement of electricity.

The mean annual temperature of the city is 16.5; the winter mean, 9.8; spring, 15.2; autumn, 16.8 (centigrade). The west winds modify the local influence in such a manner that notwithstanding the sudden changes in the condition of the atmosphere, the thermometer seldom rises very high, or descends very low.<sup>1</sup>

M. Carriere recommends patients labouring under pulmonary disease to reside in the tolerably wide and airy streets opposite the palace, and the neighbouring squares, which are separated from the sea by some rows of houses; and also in "the quarters with wide streets, between the country which terminates at Capo di China, and the upper end of the Strada Toledo, where the force of the western winds is weakened, and where the air is renewed under the influence of the southeast wind. Few invalids who might be induced to choose Naples for a winter's residence, would, however, be disposed to isolate themselves in these quarters, which are distant from the part inhabited by visitors, devoid of reading-rooms or other resources, and where they would be deprived of the advantage of being able to walk at all times in the public garden without going far from their residences.

A prolonged sojourn at Naples in winter is not generally advisable for patients affected with tubercular disease, though several would derive advantage from staying there for a couple of months at the end of the year, after the cessation of the autumnal rains, or even during great part of January, especially those of a lymphatic temperament, in whom there exists a general torpor of the organic functions. It is scarcely necessary to say that in temperaments of an opposite kind, and where there exists a state of vascular or nervous erethism, the exciting climate of Naples would generally be prejudicial. The constant communication kept up between Naples, Rome, Palermo, Malta, and the East, renders a change of locality comparatively easy to patients without subjecting them to great risk, when such is deemed advisable.

*Palermo.*—This city is built on the shore of a vast bay, at the southern extremity of a plain of considerable extent, surrounded on the land side by verdant hills, partially sheltered from the east by the Monte Catalfano, and from the north by Monte Pellegrino; the hills and environs being embel-

<sup>1</sup> Topographia Medica della Citta di Napoli.

lished with numerous villas. The public garden, the Foro Borbonico (a spacious square), and the botanical garden, are the principal places of resort. The city possesses, however, but few resources for the recreation of visitors, and there is but little society.

Palermo is not much frequented by strangers, the greater number of whom lodge in a large hotel; a few live in smaller hotels, or take apartments, though eligible furnished ones are scarce. The mean winter temperature is higher than that of Naples (11.4); the north winds nevertheless frequently render the atmosphere cold, and are more particularly experienced in February and March. The air is less dry and exciting than that of Naples, and the transitions of temperature are less frequent and sudden.

From the beauty of its situation, its rides and drives, and the greater equability of its climate, Palermo is not an unsuitable place of abode for many patients with tuberculous disease, in whose cases a warm dry air is indicated, during the first months of winter. It would, however, not be advisable for them to remain during the spring, on account of the frequency of cold winds, from which the town is not sufficiently protected, while at the same time the sun's heat renders the system more liable to be prejudicially affected by their influence. The annual amount of rain is stated to be only 21 inches, falling mostly in autumn and winter. If, therefore, the air of Palermo be not so dry as that of Naples, the circumstance must be ascribed to its insular situation.

*Malta.*—This island is about sixty leagues in circumference, eighteen in length, and twelve at its greatest breadth. There are no mountains, the highest point not being more than 600 feet above the sea's level, on which account it is exposed to the influence of all the winds which blow upon the Mediterranean. Valetta, the capital, strongly fortified by nature and art, occupies a peninsula between the two natural harbours, the Grande, and the Marso-Muscetto. It is intersected by twenty-one streets (ten lengthways and eleven transverse) crossing each other at right angles; several of them are spacious and handsome, having foot pavements. The principal street runs through the centre of the town from the Porta Reale to the Piazza, in which stands the Government Palace, whence it is prolonged to the Fort St. Elmo. Many of the streets are not carriageable; in some the ascent from the fort is so steep that flights of steps are cut. The palace is connected with the public library, which contains 40,000 volumes, and several antiquities found in the island. Valetta likewise contains a university, a theatre, a union club, &c.

The mean winter temperature of Malta is 13 (somewhat lower than that of Madeira), that of spring is 17, and autumn 19. At certain periods of the year, chiefly from the middle of September to the middle of October, as also in spring, the rain falls with almost tropical violence, mostly in the night. The sirocco coming directly from Africa is extremely oppressive and relaxing; it prevails more especially in August and September, when the ground is parched up for want of rain. There is, moreover, in and about Valetta a great deficiency of shaded promenades, which renders it disagreeable as a residence for invalids. The climate in winter is tolerably equable; south winds sometimes prevail at this season for several successive days. The predominating wind, however, is the northwest, which, being deprived of its sharpness by its passage over so considerable an extent of sea, is rather agreeable than otherwise. The air is generally pure and clear, and except during the occasional prevalence of the northeast wind, the weather from the end of October to the middle of January is frequently delightful. After this, it

becomes unsettled, and in the two following months, is often tempestuous and rainy.

The accommodation is good, the houses excellent, villas with orange gardens may also be hired in the environs of the town. The best parts for a winter residence are those having a southern and eastern aspect near the Baraccas. Casal Lia, three miles distant, is a well sheltered residence adopted for pulmonary invalids, and close to the public garden St. Antonio.

Dr. Liddell states the climate of Malta to be more especially suited to cases of chronic bronchitis, asthma, scrofula, dyspepsia, hypochondriasis, and a generally disordered state of health.

Dr. Davy, in his work on "Malta and the Ionian Islands" (1842), remarks that, though the troops are subject to tuberculous disease—owing to irregularities of living, and the frequent vicissitudes of temperature to which they are exposed when on sentinel duty, in hot barracks and guard-rooms—the natives are comparatively exempt, as are also the English residents. A recent writer observes with reference to Valetta as a residence for pulmonary invalids:—

"In November I found the heat so oppressive in the daytime, and the chills in the evening so severe, that I was glad to make my escape. The extreme humidity of the atmosphere of the island, notwithstanding its high temperature, renders it an unfit resort for bronchial patients, and the greatness of the diurnal range of the thermometer, at least in winter, makes it questionable how far it is an eligible residence for consumptive patients. It is believed that an inquiry into the results will not tend to give a favourable idea of its sanative influence in that class of complaints."<sup>1</sup>

I consider that in general, Valetta is not a very recommendable place of winter sojourn for consumptive patients, who from the absence of shade would be often debarred from taking sufficient out of door exercise in the daytime, when they are liable to have the insensible perspiration, which is promoted by the heat, checked by the action of the winds, from some of which the city and its environs are not sufficiently protected.

Some individuals, however, of lymphatic constitution, predisposed to be slightly affected with tuberculous disease, to whom the action of a moderately agitated atmosphere would be rather favourable than the reverse, by taking proper precautions against the transitions of temperature, would find the climate of Malta suited to them during November, December, and part of January, after which they might proceed to Egypt (a four days' voyage), to Rome (three days), or elsewhere, according to the kinds of climate indicated in particular cases, and with a view to avoid the cold winds which in January, February, and March not unfrequently prevail in the Mediterranean and along its shores.

LONDON, *March*, 1855.

<sup>1</sup> On the Climate of Egypt, by the Rev. Thomas Barclay.

## REVIEWS.

ART. XI.—*Transactions of the American Medical Association.* Vol. IX. pp. 907, 8vo. Philadelphia, 1856.

THE present volume of the *Transactions* is a large one—altogether too large to answer the purposes intended. If it contained but half the number of pages, it would be read much more by the profession; for as it is, the very size of the volume is forbidding, except to the few who are in the habit of reading extensively, and who have the leisure for it. The great majority of even those who prize medical literature enough to subscribe regularly for the *Transactions*, are not great readers, and therefore do not like great books. And their dislike for them is increased if they find, on opening them here and there, in the intervals of leisure snatched from the toils of daily practice, that many of the articles are burdened with details that are uninteresting, and unnecessary, or are made up of platitudes over which they have dozed many times before in shapes a little different on other pages.

We deem it necessary to press this point, because there is danger that succeeding volumes will be even larger than this, unless the plan of getting up the *Transactions* be not in some respects altered. And this increase will make it necessary to increase the annual subscription, which would be very impolitic, because it would render the diffusion of the *Transactions* among the profession even more limited than it now is. Both means of condensation and of exclusion must, therefore, be put in requisition to guard against this danger. Much is to be learned in regard to this, both by the writers of papers, and by the Association as a whole.

And, first, as to writers. Commonly the lesson of condensation is one of the hardest of all lessons to learn. A clergyman was once asked by a friend why he preached so long a sermon on some public occasion? His reply was, that he had not time enough to write a short one. The import of this remark it would be well for some of the writers for our *Transactions* to consider. It would be well for them to take time to exclude matter that is irrelevant and unnecessary, and to condense what is valuable. We would by no means advocate an overstrictness in this respect. We like detail when it is really useful, and we often find in medical papers great deficiency in this particular. We have had in our medical literature altogether too much of sweeping conclusions and indefinite generalities. But on the other hand, when details are given, there is apt to be a confused medley of relevant and irrelevant matters. Skill in presenting details is a rare accomplishment—perhaps more rare than skill in the development of general views and principles. Unimportant items are to be left out, and those which are selected are to be presented in such a manner as to give each its proper place and its relative prominence. Seldom do we find a presentation of details that does not transgress this simple rule to a greater or less extent. Sometimes it is too minute; sometimes too bare; and often immaterial points are made prominent, while important ones are touched lightly, or are perhaps omitted altogether. The papers on general subjects in the *Transactions* are better in their construction, on the whole,

than those which contain details of facts, for the reasons that we have indicated. But even of them, how few are there that present such full, logical, and at the same time concise views of the subjects of which they treat, that it can be said of them, that not a sentence or a word could be taken from them without impairing their force, and not a sentence or word be added to increase it?

So much for the writers of articles. But the Association, as a whole, have something to learn on this subject. They have learned something already, and in consequence have materially altered the plan which was devised for the *Transactions* at the beginning. This alteration was made at the fourth annual meeting in Charleston, in 1851. Before this time the reports were chiefly on general subjects of wide scope—as surgery, midwifery, practical medicine, &c.; and they were, therefore, mostly summaries or retrospects. These were discontinued, and the plan adopted of appointing committees to report on particular subjects. This change has given a much greater value to the *Transactions* than they had before; and this feature of the plan then adopted will undoubtedly be permanent, and by the aid of some restrictions, which we will soon point out, will add much more to the value of our *Transactions* hereafter than it has yet done.

But there is another feature in the plan then adopted which has proved, in part at least, a failure. We refer to the Standing Committees on Epidemics. Each year partial reports have been made—that is, reports from portions of districts, in some cases from very small portions. Although the committees have the whole country under their supervision, reports have in fact been made only from a comparatively small part of the country. And it is well that it has been so. For if all the districts into which the country was divided were fully reported every year, our *Transactions* would require many bulky volumes to accommodate the committees on epidemics, in addition to the other matter. Large portions of some of these reports are made up of details which are valueless, being of such a character that no general practical deductions can be made from them. For example, of what value to any member of this Association are *such* details as this? “Three cases of scarlatina and two of parotitis have been treated. Two of the former were scarlatina maligna, and the other scarlatina simplex. They were aged respectively two, three, and four. One a male, and two females. The female aged five died, medical aid not having been resorted to until a late period of the disease. The malignant cases were treated with mercury and antimonial emetics, with capsicum and salt internally, and also as a gargle,” &c. Or this, “One case of acute rheumatism in November; the patient, a male, sixteen years old, was not treated until the sixth day after the attack. Depletion, mercury, opium, nitre, and bitartrate of potash in the commencement; afterwards tonics and spirits, to no effect. Died on the sixth day of treatment.” A great quantity of quite as useless detail as these two extracts contain can be found in many of these reports by any one who will take the trouble to read them.

And further, it is manifest from our examination of these reports, that it is wholly impracticable for the American Medical Association to pursue the plan of collecting reports on epidemics from year to year from the whole country. The information attempted to be thus collected, should be collected in some way; but the Association cannot do it alone unassisted. It requires an extended *system* of observation—a system in which the Association may aid, but which it cannot carry out thoroughly alone. State and county medical societies may also aid. But after all, that the system as a system may be thoroughly prosecuted, the co-operation of the national government and State

governments is needed. Registration, the collection of facts in regard to epidemics, and sanitary investigations should be provided for under one grand system, for the benefit of the community. If this were done by law throughout the country, with the aid of medical men in their Associations important results might be realized. Towards such a plan there are some movements in different quarters, and we hope that at no distant period it will be fully adopted. And until this be done, our National Association had better give up the plan of having any extended and general reports on epidemics, and content itself with inserting in its *Transactions*, reports of epidemics of special interest, such as we find for the most part of the present volume.

We have alluded to some restrictions in relation to the appointment of committees to report on special subjects. We cannot dwell on this point, but will only offer two suggestions. There are so many committees appointed, that there is danger that the *Transactions* will from this cause become too bulky. There should be some limitation in this respect. And besides, it is altogether *too easy* for any one who is *ambitious to figure* in the *Transactions* to obtain such an appointment as he wishes. Great care should be exercised in selecting the chairman of the several committees. Those only should be selected who have special means of information on the subjects referred to them, and skill in their investigation. Although many of the papers contained in the nine volumes of our *Transactions* are liable to much objection even with a lenient criticism, yet we have occasion on the whole to be proud of these records of our doings. They are of great value, not only to American practitioners, but to the medical world at large. And they will continue to increase in value from year to year, for as our experience thus far has enabled us to improve upon what was at first attempted, we may look for still further improvement. If a proper selection of subjects to be reported upon be made, and due care be exercised in the choice of reporters, the *Annual Transactions* must be the great repository of the resources of the medical profession of this country, and will have a great influence upon the development of American medical literature.

In the opening address of Dr. Wood, the president, the benefits which have arisen from the Association during the nine years of its existence, are justly and eloquently portrayed. They are such that we may very properly regard its formation as an important era in the history of our profession. In looking at its influence, it is always to be remembered, that much of it is not palpable to the eye of the superficial observer. But leaving all its silent and comparatively unseen influence out of the question, that which it has exerted in a palpable form is enough to cheer us onward in our work. We will not stop to notice the particular points in which this influence has been manifested, but refer the reader to Dr. Wood's address.

It has been claimed by some that the Association is powerless, because it does not exercise authority in the profession, but contents itself with expressing opinions and giving recommendations in the form of resolutions. It is impossible that it should exercise any authority. It has no right to dictate to medical schools or societies, or to individuals. It can only exert an influence upon them by its reports and discussions, and especially by the resolutions to which these give rise. And is it true, we inquire, that these resolutions, embodying as they do the deliberate opinions of the Association, have been wholly inoperative? To take this ground is to charge the profession with a most unreasonable disregard of its own public opinion as avowed by its own principal organ. It is to accuse it of enacting every year a ridiculous farce in its

national council, making a formal display of sentiments there, which are to be treated with contempt as soon as the representatives of the profession are returned to their homes. The resolutions of the Association have done some good, though they have not done all that we could wish. Abuses cannot be swept away at once, and changes must for the most part be gradual. And often all that can be done at the outset is the expression of public opinion in connection with free debate. This expression does good of itself; and besides, it forms the basis for future action. In this respect the Association has done an incalculable amount of good, as results will show in future years much more clearly than they do now.

But we ask further, are there no cases in which the resolutions of the Association have not accomplished most fully their intention? There is certainly one in which it has done so, and that a very important one. We refer to its vote on the subject of Demonstrative Midwifery, so called. During the year or two previous to the action of the Association on this subject, there was much discussion in relation to it in the medical journals, and opposite views were expressed. The controversy was a bitter one, and there was reason to apprehend that it would be long continued, and be materially injurious to the interests of the profession. But the unanimous vote of the Association, approving the positions of the report presented on the subject, settled the question so thoroughly with the American medical public, that, so far as we know, not a voice has been raised in favour of the practice since that time. And if any other question, exciting general interest and calling out discussion in the journals, should, on examination by a committee of the Association, be definitely decided, the decision would have a great influence upon the public opinion of the profession. It is the standing of the body, as the grand council of the profession, that gives to its opinions such weight, and, in one sense, authority.

The first article in the *Transactions* is on *Deformities after Fractures*, by Dr. Hamilton, of Buffalo, New York—a continuation of his Report made last year. The plan of this paper is somewhat original, presenting by extended details a faithful picture of the results of the treatment of fractures. We like it much, and think that it will do great good in this branch of surgery. Such details of experience are our most satisfactory means of determining how far deformities after fractures result from a want of skill or care, and how far they are unavoidable. Statistics alone cannot do this, but the details of individual cases are to some extent needed. But even with such details there is a difficulty in the matter, arising from the fact that skill in managing fractures is to a great degree dependent upon a natural mechanical talent, which of course is not possessed by every physician. The nice adjustment of apparatus, so as to meet the varying exigencies of the different cases, is very important in preventing deformities, and among well educated physicians there is great difference in effecting such an adjustment from difference in degree of mechanical talent. But the influence of this circumstance on the results of fractures could not very well be brought out in such a report as the one before us.

Dr. Hamilton most certainly is indefatigable and discriminating. But he has lessened the practical value of his paper by giving details which throw no light upon the cases reported. These had better have been left out, so that his paper could be brought within a more readable compass. It is of no use to the general reader to know who attended on the different cases. This and various other small matters, that on the whole take up much room, might be dispensed with. Besides, many of the cases really need nothing more than a

general statement, embracing more or less of them together. When Dr. H. comes to publish his observations as a separate work, we think that it will do the profession more extended service if he will condense them into smaller space. Perhaps it will be said that the names of the physicians in attendance on the different cases and other details are necessary to verify Dr. Hamilton's statements. But Dr. H. needs no such verification. And if he had withheld the names, we think he might have commented profitably with more freedom upon some of the causes of deformity in some of the cases.

The paper on *Hydrophobia*, by Dr. Blatchford, of Troy, New York, is very valuable and interesting. It is marked by the usual straightforward good sense of the writer, and contains the details of a large number of cases. There is a very sad interest in them, as no remedies are curative, or seem even to lessen the sufferings of the disease. There is, however, one sure preventive—the excision of the wounded part. This is effectual when resorted to at any time before the second inflammation occurs in the seat of the wound, and it has answered in some cases when performed after this inflammation has ensued. In regard to the prevalent notion that this disease is especially apt to appear in the heat of summer, Dr. B. remarks:—

“Every investigation, and anywhere made, only proves that a belief in the influence of the ‘dog star,’ or climate, or season of the year, as inducing or favouring the production of rabies, is an utter fallacy, a mere astrological fancy, handed down it may be from remote ages, its very antiquity, perhaps, shielding it from the probe of investigation, but yet entirely unsupported by facts. Laws based upon such an hypothesis are a reproach to the nineteenth century, and not only absurd, and their execution expensive and cruel, but positively injurious to the community, inasmuch as, during the colder seasons of the year, when Sirius is not in the ascendant, they are off their guard, and thus, lulled into a false security, are consequently more exposed to danger.”

The papers of Doctors Gross and Breckenridge are valuable for their discussions of subjects of great importance to the medical public. They are all the more valuable for being somewhat opposite in their views. We have in them the opinions of two independent thinkers on subjects that need to be looked at from different stand-points, in order to get at the truth. Especially is this true of the subject of international copyright, so much agitated of late, and, as Dr. Breckenridge remarks, for the most part on one side. Although we are not prepared to assent to his idea, that things should be left as they now are, we do agree with him that the views commonly promulgated on this subject, if carried out fully in practice, would prove exceedingly injurious. The true policy in regard to this matter is not yet settled, and cannot be without considerable more of discussion.

Dr. Breckenridge's views are strong, and in combating the ultraism of the advocates of an international copyright, he has himself passed over to an opposite ultraism in arguing against even granting copyrights for native works. Authors surely have a right to the proceeds of their labour, so far as they can have them without interfering with the diffusion of knowledge. But Dr. B. asserts that the present copyright law does this. “It is,” he says, “of itself a tax upon knowledge—an obstruction to the general progress of literature and science.” We allow that it is a tax upon knowledge, but a tax is not necessarily an obstruction to the diffusion of the article taxed. It is so if it be a heavy tax, but it is not so if it be a light one, as is the case with that laid by the law of copyright. Besides, the pecuniary reward insured to authors by the copyright is a salutary stimulus to literary effort, and thus tends directly both to the production and diffusion of knowledge. But Dr. B. casts contempt upon this stimulus, using this language in relation to it:—

"Let it be remembered that the pursuit of literature is not a trade, but is a glorious calling, to which the poor stimulus of money patronage and legal monopoly is more frequently a bondage than a nourishment. Let it be borne in mind, that all books that live—all intellectual progress that is high and permanent, must forever be the creation of causes and impulses utterly different from all such as are involved in questions about copyright and monopoly."

And then he quotes from Lord Camden an eloquent passage on the same point, which concludes thus:—

"Knowledge has no value or use for the solitary owner; to be enjoyed it must be communicated. 'Scire tuum nihil est, nisi te scire hoc sciat alter.' Glory is the reward of science, and those who deserve it scorn all meaner views. I speak not of the scribblers for bread, who tease the press with their wretched productions; fourteen years is too long a privilege for their perishable trash. It was not for gain that Bacon, Newton, Milton, Locke, instructed and delighted the world; it would be unworthy such men to traffic with a dirty bookseller for so much a sheet of letter press. When the bookseller offered Milton five pounds for his *Paradise Lost*, he did not reject it, nor did he accept the miserable pittance as the reward of his labour; he knew that the real price of his work was immortality, and that posterity would pay it."

It is easy thus to wax eloquent over prospective immortality, but we deem it proper that authors, in their doubts in regard to this prospect, should have some present pecuniary comfort. And we rather think that Milton did not take the five pounds simply because "he knew that the real price of his work was immortality, and that posterity would pay it;" but he took it because he could get no more. If he had been quite sure as to the matter of immortality—if he had known just what his *Paradise Lost* was to be in the eyes of the world in all coming generations, we think that he would have tried to get more of the bookseller. And if the bookseller had offered him a good round sum, instead of the "miserable pittance" of five pounds, he probably would not have refused it from his contempt of "the poor stimulus of money patronage," and on the ground that "the pursuit of literature is not a trade, but a glorious calling." We believe that as it is "ordained that they who preach the Gospel should live of the Gospel," so it is right that those who do good to the world by making books, should live of their books, if they can. And to this end they have a right to traffic with booksellers, and do not degrade themselves by so doing, even if they can be as sure of being paid in immortality by posterity, as Lord Camden supposes Milton to have been. And further, though there are many booksellers who are cheats, as many an author has known to his sorrow, the term "dirty" is not justly applicable to them as a class. There are honourable men among them, with whom authors can effect an honourable traffic for their intellectual products.

As it is with all other kinds of traffic, so with this: many engage in it in a dishonourable way. And this is true of authors as well as booksellers. Lord Camden's term "dirty" applies to some among both. Some authors palm off upon the world others' wares as their own. Among the books noticed in Dr. Breckenridge's article is one which is a glaring illustration of this. It is a work on *Physiology*, by J. C. Comstock and B. N. Comings, M. D., a fine-looking quarto, with many engravings. The reporter notices this with commendation, not being aware of the gross plagiarism that is in it. Nearly one-half of the book is taken bodily from an English work entitled "*Animal Physiology*," by Carpenter, an elementary treatise intended for schools, and for the general reader. The plagiarism in this instance is a marked illustration of the downward progress of sin. At first much of what is taken is altered, but little is taken verbatim, and in some cases quotation marks are

used; but as we go on, we find that the alterations lessen, more and more is taken, quotation marks are abandoned, and at length whole chapters, with their divisions into sections and paragraphs, are exactly copied, the only exception being an occasional slight verbal alteration, and an omission of some paragraphs. And besides all this taken thus bodily, and taken and altered, the work as a whole is on the plan of Carpenter. It should, therefore, have been entitled Carpenter's Animal Physiology, abridged and altered. It is indeed said in the preface, that "many of the engravings, as also *parts* of several chapters, have been copied from the admirable Animal Physiology of Carpenter." But the telling of so *little* of the truth rather enhances than lessens the moral turpitude of the act. It is adding misrepresentation (to use no harsher word) to the theft.

In view of such cases, we sympathize with Dr. Breckenridge when he says, "how absurd and unjust it is for society to make itself a party to perpetual frauds and injuries perpetrated on the great thinkers and scholars of the race, through an endless succession of shallow plagiarists." But we would not agree with him, that real authors should be denied the benefits of the copy-right law, simply because plagiarists sometimes share these benefits. This is an incidental evil, which is often to be borne even when the plagiarism is exposed, and sorely tries the patience and faith of the real author; but we do not think that it would mend the matter, if we should, on Dr. Breckenridge's plan, shut him out from pecuniary emolument, and turn him over to the consolation derivable from a prospect of immortality.

The subject of Dr. Gross's paper is the *Causes which impede the Progress of American Medical Literature*. He notices four causes, which we will remark upon separately. His first cause is the identity of the language of this country with that of Great Britain. We disagree with Dr. Gross on this point. We do not believe that the fact that we have a common language with the English is a hindrance to our advance in literature, but it is rather a help, a stimulus to it. There is no servile dependence in this respect upon the mother country. There is a mutual exchange, the balance, it is true, being on the British side at present, though it is continually lessening. Why there is this disparity is shown very clearly both by Dr. Gross and Dr. Breckenridge. A very good summary of the causes of this state of things, we give from the paper of the latter:—

"The least reflection will suffice to show any one that, until recently, in this country, circumstances have been unfavourable to the prosecution of deep scientific investigation, or patient, prolonged, and philosophical research. The means which are at the command of so many in the Old World, have been here, in a great measure, wanting. The advantages for the investigation, on the largest scale, and in the most thorough manner, of the profounder problems of life and death, health and disease, which have surrounded, for centuries past, the favoured and gifted men of Europe, as found in vast hospitals, in the aggregation of men, in the encouragement given to scientific pursuits, in the immediate rewards of success, and in the incentives of every kind to avail themselves of the opportunities almost thrust upon them—these advantages have not always prevailed here, nor do they now, to as great an extent as abroad. Our national growth has been too rapid to admit yet of a full literary development. We have felled forests rather than trimmed the midnight lamp—have reared great cities rather than studied great books—have built navies rather than written metaphysical philosophy. Brave hearts and strong arms, incited by a restless activity, have founded an empire, vast in extent, mighty in power. The period of repose has not yet come. The stillness of deep thought has not yet fallen upon us. The age of great scholars, and great writers; in our profession at least,

may not yet have more than dawned upon us ; but it has dawned, with the promise of a glorious day."

Another cause might have been added, which, we think, has had considerable influence. The medical profession is, in this country, in a different condition from that of England. Here there is equality ; but there we see distinctions and exclusive privileges. There is less of diffusion there than here ; but while ours is a state favourable to a general elevation of practitioners of medicine, theirs is a state more favourable than ours at the outset to the encouragement of authorship. We say at the outset, for we do not believe that this is true in the long run. The natural and untrammelled condition of society which we have in this country, will prove eventually much more conducive than an artificial condition, to the highest development of the intellect. Even now it shows its efficiency in raising the masses by its natural diffusion of privileges ; and soon, when the hurry of the transition stage is past, and society becomes established in this new world in the pursuits of science and literature in a quiet steady state, we shall see an elevation in leading minds above what can be seen in the Old World, which will receive a portion of its stimulus from the general elevated condition of the community.

Dr. Gross's second cause, which he supposes impedes the progress of American medical literature, is a *disposition in the profession to patronize English works in preference to American*. We do not believe in the existence of this cause, although Dr. Gross uses the strong language, "On this subject no doubt exists." He thus remarks in relation to it :—

"In the first place, the fact here mentioned is evinced, most unequivocally, by the use which is made of foreign works as text-books in our medical colleges and universities. Of the forty schools which at this moment exist in the United States, there is not one which, so far as my information extends, confines itself exclusively to American works. In a number of them, indeed, hardly any other than English are employed ; and frequently, even when American are recommended, it is done in such a manner as clearly to indicate a preference to the former. Even in the Jefferson College, Philadelphia, most of the members of whose Faculty are authors, several foreign works are mentioned in the list of text-books. In the institution with which I have the honour to be connected, the principal text-books, until recently, were Wilson's and Quain's *Anatomy*, Carpenter's and Kirkes's *Physiology*, Liston's *Surgery*, Chaillie's *Midwifery*, Ashwell's *Treatise on the Diseases of Females*, Pereira's *Materia Medica*, Watson's and Stokes' *Practice*. By a resolution of the Faculty, in 1854, it was agreed that, thenceforth, no European publications should be recommended to our pupils as text-books. So far as I am informed, this is the only American School in which such an attempt has been made, although even here it has not been strictly carried out."

Dr. Gross demands more than he should of American physicians and teachers in medical schools. We would not choose an American book for a text-book, if on examination, we find that there is an English book which will answer the purpose better. Patriotism does not demand this of us. We would take the best text-books that both countries can afford us. We think the resolution of the Faculty of Louisville University wrong, and we are glad that, as Dr. Gross informs us, they have not strictly carried it out in practice.

From all the indications that we have seen, we think that there is no real ground for the assertion, that an American book is not as sure to receive its deserts, at the hands of our profession, as an English one. There is a disposition here to look upon the British and American public as one common public, having common interests ; and if this feeling be not fully reciprocated as yet in the mother country, as is asserted by some, we doubt the policy of

retaliating by patronizing American books exclusively in our medical institutions.

The third cause alleged by Dr. Gross is a *want of independence in our periodical press*. We doubt whether this evil can be said to belong especially to this country. There is everywhere need of more wholesome criticism than we find in our journals. Even if it can be proved that American medical journals are more apt than English journals to commend books indiscriminately, we see not how this offers any obstacle especially to the growth of *our* medical literature, for American medical books need criticism quite as much as English books do. We would deplore as much as Dr. Gross the lack of independence in the press, and its bad influence upon literature generally; but we do not believe that the medical journals are as defective in criticism as he is disposed to consider them. We have seen occasionally reviews in them which must satisfy even the straightforward sturdy mind of Dr. Gross in the faithfulness of their criticism.

His fourth cause is a *lack of industry in observing and recording facts in private hospital practice*. The remarks of the reporter under this head are very forcible, and are well worthy of the serious attention of individual men throughout the country. The cause here referred to does operate here more than in England, France, &c., simply because with us there is more of action, and less of recording and summing up results. We cannot forbear to quote a paragraph or two from what Dr. Gross says in relation to the scantiness of hospital reports in this country.

"Some of the hospitals of our country have been in successful operation for upwards of a century, and yet, during all this time, they have literally been as sealed books to the bulk of the profession. The only light that has ever emanated from any of them has been an occasional ray, apparently grudgingly bestowed, in the form of a contribution to some medical journal, more transient, perhaps, than the journal itself. We might, if it might not seem personal, point to some of these establishments where materials for the study of pathological anatomy abound that even a Rokitsansky might envy; to some, where vast opportunities are constantly afforded for the study of all kinds of injuries, as wounds, fractures, and dislocations; to some, where syphilis might be investigated, in all its forms and phases, with the same facility and amplitude as at the Hôpital du Midi in Paris; to some, where there are annually upwards of seven hundred cases of parturition, and any amount and variety of diseases of women and children; to some, where pulmonary, gastric, and intestinal affections are of constant occurrence; and, finally, to some, where eye and ear diseases are studied and treated as specialties.

"Of the 120,000 patients who, we have supposed, are annually admitted into the various hospitals, asylums, and other charitable institutions of the country, at least ten thousand die. The bodies of many of these are doubtless examined, but where are the records of the results? I am not aware that one solitary great and important paper on pathological anatomy has ever appeared in our medical journals from the pen of a hospital physician, surgeon, or accoucheur."

In the next article, which is on *Plans of Organization for State and County Societies*, there are many good suggestions, but we cannot stop to comment on them.

The paper of Dr. N. S. Davis, on *the changes in the compositions and properties of the milk of the human female, produced by menstruation and pregnancy*, is a fine specimen of experimental inquiry. It is direct and concise, and all irrelevant matter is left out. Dr. Davis shows, by analysis of the milk, and by microscopical examinations of it, the influence that both pregnancy and menstruation have upon it, thereby affording an explanation of

the common bad results in the nursing child in lactation under these circumstances. But the inquiry needs to be pursued further. "The examinations and analyses, microscopical and chemical," Dr. Davis remarks in conclusion, "should be multiplied until they are sufficient to render all conclusions drawn from them demonstrated truths."

The report on *the sanitary police of cities*, by Dr. James M. Newman, of Buffalo, N. Y., is a valuable one, as it presents the main points very forcibly. The subject needs to be constantly agitated until the community be aroused to take proper action upon it. Physicians everywhere have a duty to perform in enlightening the public in relation to avoidable causes of diseases, and especially in cities where these causes are allowed to act with their full force. They should let their influence be felt, both as individuals and as members of associations, in inducing their fellow-citizens to adopt the necessary preventive measures. Much has been done during the last twenty-five years on this subject, and the same efforts need only to be continued to accomplish the object desired. It is with great pleasure, therefore, that we notice the labours of such men as Dr. Newman in collecting facts and presenting them to the public.

There are some strong facts given in this report in regard to the influence which upturning of the soil had in Buffalo in the production of cholera. They are confirmatory of certain views of Dr. Barton of New Orleans, given in another part of this volume.

What Dr. Newman says in regard to compulsory vaccination accords with views which we have long entertained. The community in self-defence have a right to adopt the most strenuous measures on this subject. We have had half-way and fitful measures long enough, and it is time that a proper system be adopted for securing a constant effectual vaccination of the entire population.

The report on *the treatment of cholera infantum* is very short, and contains nothing which calls for remark.

The next report is by Dr. Horace Green, on *the use and effect of applications of nitrate of silver to the throat either in local or general disease*.

It is well known to the profession generally that the name of Dr. Green has been for many years before the public, both professional and non-professional, in connection with this subject. We say *non-professional*, for his efforts to gain notoriety have not by any means been directed to the profession alone. This is manifest in all his publications on this subject. What was said in this Journal of one of his books some years ago is true of all—they bear "internal marks of being addressed more to the public than to the profession." Perhaps the article in the *Transactions* has less of this character than what has generally come from his pen; but even here his overweening desire for notoriety is manifest. In no less than seven instances he quotes what others say in commendation of Dr. Horace Green. As a mere matter of taste we should say, that it is hardly dignified for a physician thus to gather up the praises of himself by his fellow-men, and parade them in an article in the *Transactions*. This was certainly not the business which was assigned to him as reporter before the Association.

It is not our intention to notice the various points in his article, but to remark very briefly on the manner in which he has here and elsewhere investigated this subject, promulgated his views on it, and practised upon them. The manner of doing this is a very faulty one—so much so, that Dr. Green, with very great opportunities of rendering service to his profession and to medical science, has really done them more harm than good. That he has

done some good, in common with others, by calling the attention of medical men to an important means of cure in some diseases, it is just to allow. But he has at the same time done harm which will vastly more than counterbalance this good by failing to discriminate with any accuracy as to the application of this and other associated means of cure. He has failed to make the requisite discrimination chiefly in three respects. First, he has failed to discriminate between those cases in which these means are applicable, and those in which they are not. His application of the nitrate of silver, and clipping of tonsils and uvulæ are, it is notorious, altogether too common measures with him. Secondly, he has failed, in those cases in which recovery or amelioration has followed the use of local treatment and general treatment combined, to estimate discriminatingly the agency of each. In certain classes of cases, the great majority of which are vastly more benefited by general than by local treatment, he has been disposed to give all the praise to clipping and swabbing. Thirdly, he has failed to discriminate between the signs of the presence of the instruments used (the sponge-armed probang and the elastic tube) in the œsophagus, and those of its presence in the larynx. The experience of physicians, and the investigation by the committee of the New York Academy of Medicine, show that there are difficulties in discriminating on this point, and that Dr. Green has entirely failed to be aware of them in his practice. Dr. Detmold was undoubtedly correct when he said, in the discussion in the New York Academy, that he believed that both Dr. Green and himself had often supposed that they had passed the probang into the larynx, when it had really slipped into the œsophagus. Indeed there is no satisfactory proof that the sponge-armed probang has ever been passed by Dr. Green through the vocal cords. The evidence of its passage through them, upon which he so implicitly relies, has been very clearly shown to be false by Mr. Erichsen (see the January number of this Journal for 1856). The sense of constriction experienced by the operator, supposed by Dr. Green to result from the resistance of the vocal cords, was found by Mr. E. to exist very palpably when the instrument was unquestionably passed into the œsophagus, it being "occasioned by the passage of the instrument through that narrowed portion of the end of the pharynx, or the beginning of the œsophagus, where the cartilages of the larynx, projecting backwards, give rise to a certain amount of constriction, compressing the gullet, as it were, against the spine." Indeed every one who has passed a probang into the œsophagus any number of times must have experienced the same thing.

The passage of a tube through the vocal cords is quite another thing. But even this cannot be done as readily and as certainly as Dr. Green pretends. In two cases in the investigation of the New York committee, the patient vomited through the tube, although Dr. Green was positive that he had passed the instrument into the trachea. We remark in passing, that Dr. Green shows his characteristic lack of discrimination in treating of injections "into the lungs," (this is his expression) in his paper read to the New York Academy. The title of this paper is *Injection of the Bronchial Tubes and Tubercular Cavities of the Lungs*, and yet there is not a particle of evidence in that paper that *tubercular cavities* have been injected, and Dr. Green, in the discussion in the New York Academy, withdrew all pretension of ever having done this. Surely such carelessness, may we not say recklessness, betokens anything but a discriminating mind.

It is evident that Dr. Green is superficial and loose in his observation, and has none of that accurate discrimination that marks the true discoverer. He is rather the inveterate rider of a hobby which he has chanced to mount, and

it is no thanks to him that it proves to be rather better than some hobbies that are ridden by others.

The question whether Dr. Green is original in the topical application of nitrate of silver to the larynx, or has borrowed from Trousseau and Belloc, who were prior to him in point of date in this matter, is one of small importance. The degree of credit due to him depends little on the decision of it, but more upon the amount of discrimination that he has made in regard to this measure. And here we find that he has failed; we may say, blundered, and that continually. This being the case, it is no matter of wonder that the profession have been unwilling to allow all the pretensions which Dr. Green has set up for himself. This he puts down to the score of the persecution which so many claim is apt to be poured upon the head of him that happens to get in advance of his brethren, and make some discovery. It seems from his report to the New York Academy, that he had in his "earlier experience" so hard a time with his own countrymen, that he was a short time before induced to send a paper to the London Medical Society, which he had "thought to lay before the members of the Academy." But though this paper was well received, yet probably he has found that, on the whole, he gets no better treatment across the water than he does here; and he now makes bold to come before the Academy, to "give the proof, not only of the practicability of this operation (swabbing the larynx and trachea), which has been so positively denied, but of our ability, as *Americans*, to accomplish still more than this for the treatment of thoracic diseases; to perform operations of which the conservative Englishmen and skeptical Frenchmen have never dreamed!" But seriously; however it may have been in former times, the sin referred to cannot be laid to the charge of medical men as a body now. They are quite sufficiently ready to welcome any supposed discovery, and to pay all due homage to the discoverer. In not a single instance have the profession, certainly within this century, failed in this respect. And if they have not done justice to Dr. Green, it is an exception to their general conduct. But if we are right in what we have stated in regard to his want of discrimination, his case is not an exception. The profession have only estimated him justly, and it is from this just estimate that he and his friends speaking in his behalf have failed to establish his claims with the profession at large.

While Dr. Green's deficiency in discrimination has occasioned his failure in obtaining the clear and elevated reputation with the profession that he has desired, it has not hindered him from gaining a reputation with the non-professional public. Nay more, it has even added to that reputation, and rendered his practice a source of much greater emolument than it would have been if he had made very carefully the proper discriminations in diagnosis, and in the application of what he claims to be his peculiar mode of treatment. If he had done this, he would have obtained an unquestionable reputation with his compeers, and his industry and tact would have insured him a large practice, though not as large and profitable as it now is. In pursuing the course which he has done, he has put himself in effect in a great measure in the attitude of the quacks, who come before the public with some special mode of practice, as inhalation, for example; and who, with an indiscriminating application of their remedies, acquire great notoriety with the public, and therefore extensive practice. We do not say that he has done this deliberately for the sake of the emolument that could thus be gained. We do not undertake to decide as to motives. We only say that this is the effect of his course. And having thus put himself, whether unwittingly from sheer

lack of discrimination, or in some measure wittingly, on a level with quacks, he has no right to expect any great sympathy from the profession which he has in effect in part ignored. The profession, on the other hand, have a right to call upon him to come clean over from the domains of quackery, or to give up all claim to be ranked among regular physicians. The rewards of quackery and of a regular honourable standing in the profession, ought never to be shared by the same individual. We have a right to apply this rule as rigidly as the Gospel does its rule, ye cannot serve God and Mammon. And we cannot forbear to remark that, as Dr. Green maintains so questionable a relation to the profession, he is out of place as a reporter to the National Medical Association.

And here leaving Dr. Green, upon whom we have dwelt longer than we intended, we will say a word or two upon the general subject of the relation to the profession of quite a large class of men in its ranks who make hobbies before the public of certain specialties. We refer particularly to two specialties; that of diseases of the uterus, and of the throat, the nitrate of silver being the great remedy used in both cases. In the first specialty the hobby-riding has been much more ridiculous and injurious than in the latter. The body of the uterus has been almost wholly ignored, its neck being the grand seat of disease in the eye of these speculum-armed pathologists. In both specialties many a man has acquired notoriety which has given him a standing with the community that he did not deserve. And deficiency in discrimination does not only not prove a bar, but is a help to success. It is especially so in the uterine specialty, because errors in diagnosis are covered up from the sight of all except him who makes them. In both it is for the interest of the practitioner to make out as many to have the local difficulty as possible, for the more he can have of his peculiar cases, the more notoriety will he gain. Particularly is it a matter of importance to discover the existence of the local difficulty, when the patient has been treated by some other physician, as having only a general disease. Patients are always pleased if a physician can find something local. They would rather have it so than to be told of some indefinite general condition, even if the prospect of a removal of it be no better in the one case than in the other. But especially are they delighted when, with the localizing of the disease with profound diagnostic air, comes the confident promise of a cure. Never shall we forget the case of a man who said to us, "It is very strange that among all the doctors that I have consulted, not one found out what was the matter with me till I came to Dr. ———. He says that he will cut my palate, and then I shall get well." We looked into his throat, but could not see that the palate needed cutting. It was cut, but the man died of phthisis not many months after. The physician who gave the opinion in this case, is a fierce and a successful rider of both the throat and the uterine hobbies. His glaring errors in diagnosis, which have been many, have never injured his reputation with the public, nor even with some portion of the profession.

The evil of which we have thus spoken is a serious one, and is very extensive. The picture that we have given has its counterpart almost everywhere. And we know of nothing which has had so great a tendency to break down the wall of separation between medicine and quackery as the course indicated, pursued as it is by so many who have a respectable, and some that have even an honourable place in our ranks. The profession should speak out on this subject, and should act upon it so far as it is possible to do so. For it is not the quackery outside that injures us, but that which is in the very midst of the profession.

We come now to the report of Dr. John B. Flint on *the best mode of rendering the patronage of the national government tributary to the honour and improvement of the profession*. There are many important points forcibly brought out in this paper, and it is chiefly valuable in giving physicians the arguments which they can use in the individual influence that they may exert, in enforcing the claims of the profession to public favour and patronage. It begins with an exposition of the folly and injustice of the practice of issuing patents to the proprietors of quack medicines. We are glad to learn from the report that this practice is almost wholly discontinued. So the reporter was informed by the Commissioner of Patents.

"Since the law of 1836," says this officer, "the following patents only have been granted for medicinal compounds: one patent for a vermifuge, in 1837—one for cure of syphilis, in 1841—one for vegetable elixir, in 1843, and one for an ointment, in 1844."

"These, if the famous Ether patent of Jackson and Morton be excepted, are the only patents granted, since the time referred to, as appears by the records of the Patent-office. If there be any other compounds before the public, under the guise and appellation of 'patent,' it cannot be for anything other than for the *design of a label*. Such cases, when scrutinized, will probably be found to be merely a patent for a label, and not for a composition of matter. Although twenty or thirty applications are received annually, as appears by the record, it has been the practice of the office almost universally to refuse to grant a patent for medical prescriptions."

But the statute allowing the granting of such patents still remains, and though it is, owing to the intelligence and conscientiousness of the present Commissioner and Examiners, almost wholly inoperative, the profession should not be satisfied till it is blotted from the statute-book. We know that it will be said by some that physicians had better have nothing to say on this and other kindred subjects. But we do not believe in maintaining this supposed dignified silence in regard to our rights. We believe that what has been said has done good, and that in the case before us the almost entire discontinuance of the objectionable practice is to be attributed in part to the influence of the uttered sentiments of medical men.

The reporter remarks on the propriety of the bestowment of pecuniary patronage by government upon a profession that confers by its investigations so many *public benefits*. We do not think that this is practicable except in regard to a certain class of investigations. We refer to those which relate to epidemics and to sanitary regulations. Here we think, as remarked in another part of this review, we can very properly invoke the aid both of State governments and the national government, and we believe it will not be in vain to do so. We hope to see a grand system of investigation on these subjects adopted for the nation on the plan which we have before mentioned.

The report closes with some good suggestions in regard to the distribution of medical patronage in the army and navy. Certain changes are proposed which appear to us to be very reasonable.

In the report of Dr. Wm. H. Anderson, of Mobile, the subject of education is again discussed. He thinks that previous reports, though very able, have not accomplished anything, "because they were mere recommendations requiring more than medical colleges are willing to respond to." Impracticabilities have in his view been broached in them. He, therefore, has what he deems to be a practicable plan, though at the same time he says that it "*may meet with the fate of its predecessors*." He starts with the idea that the great defect in medical education is the want of clinical training. "This is the reason," he says, "why the standard of medical education is low, why

the doctor has no more elevated position in society than the tradesman, and why so much opprobrium, uncertainty, and doubt are cast upon a noble and humane profession." He therefore insists upon it that medical colleges should be always located in populous towns. This is of course the great remedy if the reporter is right in stating what is the great defect. And here his report might end, the reporter having done what his predecessors have failed to do. But it seems after all, from the remainder of his report, that a lack of facilities for clinical training is not "*the* reason why the standard of medical education is low." There are other reasons for this, and the reporter goes on to point out the defects in the mode of medical education. He thinks that altogether too much of the labour of education is put upon lecturers, and that therefore they do not have time to teach their pupils as thoroughly as they ought in the practical parts of medicine. To relieve them from going over so much of the elementary ground as they now do, he would have students quite thoroughly educated by physicians in their offices before they attend lectures. And in order to have this preparatory work well done, he says that a book especially for this object is needed—"a book which will contain in one, or at most two volumes, dissertations on the various subjects which enter into the course of medicine." This plan, Dr. Anderson says, is "novel, and yet it is practical." We hardly think from our experience in teaching medical students that this magical book would answer. We doubt whether the reporter has really got at anything more practicable than his predecessors. We think that there is still room for something more to be said on the subject of medical education, and it seems the Association think so too, for they have appointed a committee on this subject for next year. The truth is, that the mode of medical education is faulty in many respects, and radical changes are needed. These cannot be effected at once, but the subject needs to be agitated in our Association every year for the very purpose of effecting them gradually. One of the greatest of the defects in medical education is the separation of teaching by recitation from teaching by lectures. This forcing knowledge into the mind at the rate of five or six lectures daily is a most preposterous plan. And though the plan is quite firmly fixed by long-continued custom, it must sooner or later be given up. Lecturing and recitation must be brought to go on together, instead of having the one put into one part of the year, and the other, if it be attended to at all, put into the other part.

The next report is on the *Topography of the Eastern Shore of Maryland*. We cannot see of what use this article can be to the readers of the *Transactions*. It could be of use only in an extended collection of facts for the investigation of the influence of the various causes of disease. As an isolated paper, it is of no value, though it bears the marks of being very well done; and it should not, therefore, have been admitted into the volume. It belongs to that useless lot of lumber that comes in such quantities from the Epidemical Committees.

The report by Dr. Cain on the *yellow fever of Charleston, in 1854*, is a very interesting one. So also is the report of Dr. Fenner on the *epidemics of Louisiana, Mississippi, Arkansas, and Texas*, which comprises several separate reports, mostly on yellow fever as it prevailed in various places during the years 1853, 4, and 5. The Committee of Publication have also very properly taken the liberty to insert also, in connection with these reports, a report of Dr. Fenner on the *yellow fever of Portsmouth and Norfolk, Va.* We have in all these reports much valuable material for the investigation of some very important questions in relation to this disease. In regard to the question of contagion, the opinions of the different reporters vary. Some of them believe

the disease to be propagated by contagion wholly. Others believe that it is non-contagious. And others still, among whom is Dr. Fenner, believe that although it is generally not contagious it is *contingently* so. On this subject Dr. Fenner remarks:—

“I confess it is contrary to my first convictions as well as to all my observations up to the year 1853, but I trust I shall never become so bigoted in any belief that I cannot possibly be convinced of its fallacy, if it should be false, as is liable to happen in all human judgments. Dr. Rush once proclaimed the belief that yellow fever was an imported and contagious disease, but afterwards acknowledged his error and obtained much credit for magnanimity, by openly recanting a published opinion. In like manner I have but little doubt that if Dr. La Roche had spent the last three summers in this region, he would have found sufficient cause to modify his opinion on this point. It is well known that since the days of Rush the *non-contagion* of yellow fever has been the doctrine of all American Professors, with the exception of the late Dr. Hosack, of New York, and Dr. Dickson, of Charleston. And this is the doctrine that was instilled into the mind of nearly every physician now practising in this region; but an extensive intercourse with the profession leads me to say, in all candour, that the experience of the last three years has greatly modified opinion on this subject.”

For ourselves, we do not see how the apparently antagonistic facts given by the reporters before us, and by other reporters, can be reconciled in any other way than by adopting the doctrine of contingent contagion. That yellow fever is contagious sometimes, we consider as absolutely proved. But we also consider it to be as absolutely proved that it is ordinarily diffused by other means than contagion. And we are inclined to the opinion that *almost always* may be substituted for *ordinarily* in the last statement, when we come to examine critically a more extensive range of facts than we have yet had placed before us. That local causes have a great influence in the production and diffusion of the disease, is granted on all hands; but there is much difference of opinion as to the nature of these causes. This question is of vast importance in a sanitary point of view—more so than any other to which inquiry has been directed. Inquiry should be pushed vigorously in this direction, for we apprehend that it is by means of prevention acting against local causes that the ravages of the disease may be most effectually lessened, while quarantine regulations have comparatively little efficacy. The community are altogether wrong in their policy as to guarding against the production and spread of the disease. They direct their efforts mostly against the agency which has but little influence, while the chief causes of the disease are left in a great measure untouched, or are ineffectually attacked only when the disease has actually got a foothold, or when it is in the immediate neighbourhood. Facts need to be gathered and laid before the community, so that they may be aroused to the necessity of prevention by removal of the chief causes of the disease, so far as they can be removed, and to the propriety of modifying the quarantine regulations, some of which are useless and even positively injurious. But we forbear, for the subject is too wide a one for us to enter upon in this review.

The report of Dr. Barton on *the meteorology, mortality, and sanitary condition of New Orleans in 1854 and 1855*, we would be glad to examine at some length, if it would not make this article too long. His views are put forth very strongly, but they need further investigation, with a more extended range of facts, before they can be fully adopted. We have no doubt that there is much truth in them, but whether there is all the truth in them that he claims, is questionable. In the latter part of his paper, he remarks very

forcibly on the false and negligent legislation of the city government in regard to the prevention of disease. The following is an extract from these remarks:—

“Such is a brief exposition of IMPROVIDENT LEGISLATION and its effects here; it has left its indelible mark on the records of the past. Proper sanitary legislation should fulfil the great demands of a people suffering under remediable ills. All that has been done with this view heretofore, has been the occasional appointment, at long and distant intervals, of bodies, ycleped ‘Boards of Health,’ without personal or corporate permanency to acquire that experience to this *here* recondite department of science; with very restricted, and usually without any means, and with advisory powers only, and whose advice was rarely, if ever, asked for or taken. Any other direct sanitary legislation is in vain sought for on the statute-book. But it may be asked, why should it not be on the statute-book? Is it not time that sanitary measures should be entitled to the consideration of this people when that is the only barrier left to her prosperity and progress, and when she has been labouring under legislative empiricism, that would have ruined any other country on the face of the earth, for more than half a century. But, fortunately for our argument and our proof, we are not left in the mazes of doubt on this subject. Those who have cultivated that department of medical science, termed life knowledge or public hygiene, know that there are certain tests through which it is ascertained whether any portion of the city or country has had due care taken of its sanitary relations, or whether they have been utterly neglected; these are, when, on an average of years, it shall have been subjected to a mortality exceeding 20 in a 1000, or 2 per cent. of its population, it has suffered under *remediable ills*. You have seen above, that for the last ten years our city has exceeded that more than three times over. And, again, diseases have been divided by vital statisticians into two classes, the preventable and non-preventable. The first only is a subject of legislation, and embraces what is called the zymotic class (of epidemic, endemic, and contagious maladies); here, this class, in a series of years, has largely exceeded one-third of the entire mortality; in 1853, it was considerably over two-thirds! Hence the proofs are plain and irrefragable, that our city has suffered from both improvident and defective legislation; that we should now demand correction and preventive measures, and that it is now time that the firm and cauterizing hand of science, experience, nay, of common sense, should be exercised in a crisis, to which folly, ignorance, and wilfulness has brought us.”

We remark, in passing, that we hope that the committees on epidemics, will hereafter confine themselves to such definite reports as those made by Drs. Cain, Turner, and Barton in this volume, and that we shall have no more of the general loose, and often rambling collections of details which have covered over so much space in some of the previous volumes of the *Transactions*.

The report on *strychnia*, by Dr. Lewis H. Steiner, of Baltimore, is a very good summary of what is known in regard to this medical agent.

The prize essay, on *the Arterial Circulation*, by Dr. Henry Hartshorne, of Philadelphia, is an admirable paper, and is well worthy of the prize awarded to it. It shows great research, there being an abundance of references to authorities, for the statements made by the author on the many subordinate points, which contribute to the establishment of the prominent truth developed in the essay. Most of the materials for the paper were gathered from others, but there is great originality of mind shown in the mode of using these materials. The argument in its consecutive steps is admirably unfolded; and while there is great fulness on the several points examined, there is at the same time great conciseness, there always being a directness in going to the real point of inquiry, a judicious selection of material, and an utter absence of anything like mere verbiage. It is seldom that we see so much that is valuable condensed into so small a space. The paper, on the whole, may

be considered a beautiful example of the proper mode of conducting investigations of this kind. We cannot avoid quoting his *Résumé* at the conclusion :

"We conclude, as the summary result of the foregoing investigation—based, as we have seen, upon the combined facts of *Histology, Analogy, Experiment, and Pathology*—that the most probable opinion or theory is (in opposition to most recent authorities,<sup>1</sup> but in accordance with the views of Hunter and Sir Charles Bell, and partially with those of Carpenter), that, as all the arteries have a muscular coat, this is endowed, like the other muscular tissues of hollow viscera, with a power of alternating contraction and relaxation ;<sup>2</sup> that this contraction is exerted in immediate connection with, and succession upon, the beat of the heart; *the arterial systole thus combining with that of the ventricles to make up the pulse*: that the variation occurring in different parts of the circulation is to be accounted for to a considerable extent, although not entirely (a capillary power or nutritive affinity being also acknowledged), by the different degrees or kinds of *action* of the arteries ; that the normal modes of stimulation by which these vessels are affected are chiefly three: 1. That of *dilation*, from the impulse of the heart; 2. The stimulus of *oxygen*, in the red corpuscles of the blood, by which all muscles are maintained in activity ; and 3. The direct (*and reflex*) influence of the *nervous system*, by means of the arterial or vaso-motor nerves;<sup>3</sup> lastly, that it is by the centres of the Sympathetic system that the principal control is maintained over the arteries, as well as over the heart; while they are subjected, also, to influences directly transferred or reflected from the Cerebro-spinal axis, and to some which result from contact with the external world. The further consequences of these conclusions, as applied to Pathology and Therapeutics, would constitute too extensive a subject for the present essay.

"If there has been any cogency in the course of reasoning which has thus been brought to a termination, it will appear that, by those who have adopted an opposite view, the most obvious things must have been often overlooked, and the simplest opinions rejected ; perhaps, from a too great love of the mysterious and difficult in natural science.

"It will have been, in that case, I trust, not an idle task, to show how *undue weight* has been given to *experiments*, the exact *meaning* of whose results is a question of *difficult* and most *uncertain solution*: or, to protest, in the language both of reasoning and of facts, that, to doubt the certainty of *great natural Laws*, as expressed in *clearly defined and well ascertained analogies*, is, to a certain extent, a treason against Science: since, in whatever direction or department of the *κοσμος* intelligence may act, it must still discover, under the same Unity of Power, but *ONE TRUTH*."

We think that the author is right in what he says in regard to the danger of fallacy in investigating by experiment on living animals. There is great need of caution in our conclusions from such investigation. Nature tortured does not tell the truth by any means as clearly as nature with its ordinary relations. But at the same time, we think our author lays too much stress on arguments from analogy. Direct observation on the points investigated, is always of the most value, while analogy may be confirmatory, and so also, may be the results of experiments. Neither is to be confided in alone, but each should have its due relative weight. There is too much of exclusive-

<sup>1</sup> Magendie, Henle, Weber, Kölliker, Simon, Savory, Paget, Arnott, &c. &c.

<sup>2</sup> Substituted by a *tonic* or rigid contraction, under certain *abnormal* and exceptional circumstances.

<sup>3</sup> The effect of *venesection* in the treatment of inflammations may be clearly understood according to this view ; as, by diminution of the quantity of the blood and of the number of red corpuscles, all of these conditions of stimulation may be reduced, either directly or indirectly.

ness in investigation of abstruse subjects in physiological science. All the sources of evidence should be appealed to, as is done in this essay.

We apprehend that the main point in this essay could be abundantly proved by pathological facts from the experience of physicians, properly observed and gathered. We will contribute a single case from our own experience. The patient, a feeble spare old lady, found on rising in the morning, that she had lost, to a great extent, the use of both arms, and that they were cold. On examination we could not feel the pulse in either arm, except at the axilla, and there it was feeble. In a short time, by the continued use of heat, friction, and other stimulants, the usual temperature and the muscular power were, for the most part, restored, but the limits of pulsation were but little extended. And this continued to be so while the patient remained in our neighbourhood, which was several years. We need hardly say, that if the pulse had depended upon the mere tonicity of the arteries, the phenomena of this case could not have occurred. It can be explained only on the supposition of a paralysis of the muscular coat, thus preventing "the arterial systole," which, as Dr. Hartshorne has shown, combines with that of the ventricles to make the pulse. We think, too, that we have in a deficiency to a greater or less degree of this "arterial systole," the explanation of the fact observed by physicians in so many cases, that the force of the pulse does not correspond with the force of the heart's action.

There are some subordinate points in the essay, in regard to which, we should disagree with the author. For example, we do not think that he is right in attributing the dilatation of the os uteri wholly to pressure on its relaxed fibres. On this point he remarks:

"The os tinæ is, perhaps, more subject to observation than any other dilatable orifice, except the external sphincters. But we do not find even Madame Boivin, while distinctly recognizing and describing the muscular fibres of the os and cervix uteri, more than allowing that these weaker fibres *yield* (under absence of stimulus to their own contraction) to the efforts of the extruding body of the womb. The index of every obstetrician may bear witness, that it is *only after*, or with, and never in anticipation of, such powerful pressure by means of the fœtus and its bag of waters, that the os opens."

Our experience is contrary to this statement. In very many cases we have found the os uteri fully dilated before any pressure was made upon it, and we think that this must be the experience of all obstetricians. The dilatation in such cases is effected by muscular fibres antagonistic to the circular fibres in their action, just as the radiated fibres of the iris are antagonistic to the circular ones. Generally the dilatation is produced in part by the action of these fibres, and in part by pressure.

There are few things, however, in the essay, from which we dissent, and this article is already so long that we will not stop to notice them.

We have thus fully reviewed the contents of this volume. One great object that we had in doing so, was to exert some little influence in rendering future volumes of still more value than this is. We have intended to be fair in our criticisms, and at the same time independent.

W. H.

ART. XII.—*Leçons de Physiologie Expérimentale, appliquée à la Médecine, faites au Collège de France.* Par. M. CLAUDE BERNARD, Membre de l'Institut, &c. &c. Tome deuxième. Cours du Semestre d'Été, 1855. Paris, 1856.

*Mémoire sur le Pancréas et sur le Rôle du Suc pancréatique dans les phénomènes digestifs.* Par M. CLAUDE BERNARD. Paris, 1856.

It may be truly said that M. Bernard has inaugurated a new epoch in experimental physiology. He has first placed the science on its true footing, and has indicated the only course, that of experimenting upon living or recently killed animals, by which actual and satisfactory progress can be made. He has done the same thing for physiology that Bichat did for anatomy, and that Robin and Verdeil have done for organic chemistry. He has shown us what the science really is, and how it is to be pursued. Experiments upon the living body were, it is true, performed before his time by Magendie and other experimenters; but their attempts were generally awkward and unproductive. They did not comprehend properly the nature of the questions to be settled, nor the manner of accomplishing their solution; and, consequently, the random and barbarous mutilations to which they resorted, only served to bring discredit upon physiology, without leading to any really valuable acquisitions. Bernard, however, is not only gifted with remarkable dexterity in contriving and performing an experiment, but he has also always before his mind a distinct and definite notion of the object to be accomplished by it, and the mode in which this is to be attained. His experiments, therefore, lead to something. They are the means of progress; and not only settle old points previously in dispute, but constantly suggest new questions, and open new paths of inquiry.

The course of physiology given by M. Bernard at the College of France is somewhat peculiar, also, in another respect. It is not intended to be a systematic course. It does not profess to give a complete and final account of the science, or even of any particular part of it. On the contrary, its especial object is to treat of those portions of physiology which are still incomplete and unsettled; and to present them, so to speak, not in the state of entire maturity, but in that of transition and development. In this respect, a systematic and a progressive course necessarily differ from each other. In a systematic course, such as that given at the Ecole de Médecine and most of our own medical colleges, where the lectures are addressed solely to beginners and undergraduates, it is the object of the lecturer to present to his hearers only the well-established facts of the science, and to inculcate those doctrines which have received the general assent of physiologists. Points which are doubtful or disputed he passes over in silence; since their discussion would only tend to perplex and confuse the mind of the student, who is not yet in a condition to examine and criticize, but only to learn and remember. The science, therefore, as presented in such a series of lectures, has an appearance of completeness and finish, which is very far from belonging to it in reality. All its chasms and deficiencies are concealed, and the attention of the hearer is directed only to those portions which are fully established, and in no danger of being disturbed.

The course at the College of France, however, is entirely different from this, both in its plan and object. Instead of passing over those points which are doubtful and dwelling upon those which are fixed, it passes over those

which are fixed, and dwells upon those which are recent and unsettled. It does not teach, but discusses. There the science leaves the position of dogmatism and dignity which it occupies elsewhere, and descends into the arena of the present, in the character of *physiologie militante*—to use an expression of M. Bernard—ready to examine and prove, by experimental means, the questions which may arise upon any physiological doctrine. Bernard carries out this idea to its fullest extent. He desires to show his hearers, not only the results, but the progress, also, of his investigations; and to unfold the manner in which new questions present themselves, and in which they are gradually, and by successive trials, followed to a solution. He does not hesitate, therefore, to present his ideas, frequently, in an incomplete form, even though they may afterward require some modification; for his audience is in this way carried along with him, and the teacher and the student learn together.

There can be no question of the immense value of such a course. It is, indeed, the only means by which the profession can be kept informed of the actual progress of the science; for it is in such a course only that progress is actually made. M. Bernard has, therefore, published his Lectures, not as forming a standard Treatise on Physiology, but as a “simple narration of what takes place in the laboratory of a physiologist who is employed in scientific investigation.” The advantage which he expects to derive from this method is a double one. In the first place, it shows the difficulties and complications that surround physiological experiments, and the care which is necessary in performing them; and, in the second place, it is calculated to excite in the minds of the profession an interest which may provoke new and more fruitful investigations; instead of quieting and satisfying them with the knowledge of what has already been done.

Bernard, however, is not blind to the fact that by such a course he lays himself open to innumerable criticisms and attacks. He knows very well, by experience, that for every man who is capable of striking out a new path by himself, there are ten who can follow on his track, and seize eagerly upon any apparent mistake or oversight of his, to throw doubt or discredit upon his conclusions. He cannot resist the temptation, in the preface to his volume for the previous year, of throwing down the gauntlet to these *parasites scientifiques*, as he calls them, and of showing that, while he is conscious of exposing himself to their attacks, he is very willing to undergo that risk for the sake of the advantages which are certain to result to the profession.

“At the same time,” he says, “I am very well aware that a book published on this plan, will afford abundant opportunity for the sterile criticism of those scientific parasites, who, incapable of originating anything themselves, always fasten upon the discoveries of others, and attack them, in order to gain notoriety for themselves. Such a consideration, however, does not deserve even to be thought of, provided I can succeed in my object, and make this course useful to those who try to extract what is good from the labours of others, in order to draw from it a fresh stimulus for the improvement and furtherance of scientific pursuits.”

The former volume published by Bernard contained his lectures, for the winter course of 1854–55, on the Formation and Destruction of Sugar in the Animal Body. The present volume contains his lectures, delivered in the summer course of 1855, on the Character and Functions of the Digestive Fluids. It must not be supposed, from what has been said of the experimental and progressive character of Bernard’s lectures, that he is destitute of philosophical ideas, or incapable of taking enlarged views in physiology. On

the contrary, his lectures are always arranged in accordance with such philosophical ideas as show him to be a real physiologist, in the full meaning of the term, and not a simple experimenter. In the first chapter of the present volume, he discusses the proper mode of investigating a physiological question, together with the point of departure at which the investigation should commence in order to arrive with certainty at its object; and more particularly the relative positions, in this respect, of anatomy and physiology.

Anatomy has too often been regarded, not only as an introduction to physiology, but even as a legitimate means by which discoveries in physiology might be effected. When the compound microscope became so far improved that it enabled us to study in detail the minute cells and fibres of the body, by how many was it anticipated that this minute knowledge of the structure of parts would give us, at the same time, a definite idea of their functions? No such knowledge, however, was obtained from microscopic anatomy; and there are yet many persons who do not fairly understand how it happens that we were disappointed in this particular.

Bernard puts the question upon its true footing, when he says that there is no such relation existing between anatomy and physiology that one can be used as a means of learning the other. There is no possibility of deducing a physiological fact from an anatomical fact—the function of a part from its anatomical structure. A knowledge of anatomy is certainly essential to the physiologist, but only as a preparation, in order that he may be able to experiment successfully, and use his instruments without bungling. Anatomy does not really give him any information as to the mode of action of an organ, but only as to its size, form, and structure. A little confusion, however, is apt to exist, in all minds, on this point, in regard to those organs whose function is purely mechanical; as, for example, the urinary bladder or the arteries. We are apt to think that we deduce from the shape of the bladder its function as a containing sac or reservoir, and from that of the arteries their function as conveying tubes or ducts. But, as M. Bernard very justly remarks, we do not really make the deduction, even in this case; but are only enabled to guess at the function of these parts, because they *resemble, in their figure, tubes and ducts which we have seen and used elsewhere*, as, for example, in the mechanical arts, and the functions of which we have already learned experimentally. But so soon as anatomy presents to us certain organic forms, such as nervous and muscular fibres, for which we can find no analogies in our previous experience, we are totally at a loss, and can make no progress without resorting to direct experiment or observation. A very simple but striking comparison will serve to illustrate the justice of these remarks.

“If we were to enter a workshop,” says M. Bernard (page 7), “in which some mechanical operation was carried on, the details of which were unknown to us, examine the tools and instruments as much as we pleased, we should never be able to guess at the use for which they were designed, without seeing them in operation. We can only comprehend the action of the different pieces of mechanism by seeing the machine at work. Then we at once understand their figure and relations; and, in connection with their observed uses, can easily remember the forms, in which we before saw nothing but confused and inexplicable details.”

It is very plain, then, that there is no basis for the idea that physiological facts may, in any case, be deduced from anatomy; and as forms alone are incapable of indicating to us the function of a part, so two organs may have the same anatomical form, and yet differ widely in their functions. This truth furnishes the text for a considerable portion of the present volume. It is

illustrated in the case of two glandular apparatuses, viz., the pancreas and the salivary glands. These organs have been considered as similar in their functions, because they resemble each other in their anatomy. Depending upon the external and gross anatomical characters, the old anatomists regarded the pancreas as an "abdominal salivary gland;" and the name by which it is still designated among the Germans, *bauch-speichel-drüse*, indicates the same supposed resemblance. Even in their minute structure an equal similarity exists between them; and microscopic examination fails to distinguish the elements of the parotid gland from those of the submaxillary, or those of the submaxillary from those of the sublingual. Nevertheless, each of these organs is different in function from all the others, and cannot be replaced by them; for though the form of their cells and follicles is the same, the fluids which they secrete have different ingredients and are destined for different purposes.

Taking these principles for his guide, Bernard adopts a mode of investigation which he terms the *physiological* or *functional* method, in contradistinction to the anatomical or organic. This distinction is, in reality, of some importance; and has, like the others already mentioned, a practical bearing. Physiology has for the most part been studied from an anatomical point of view. That is, the problem which the investigator proposes to himself is as follows: a particular organ being given, to discover its function. We ask ourselves, what is the function of the spleen, the thyroid body, the suprarenal capsules? That is, we start with the organ; and by experimenting on that, we endeavour finally to arrive at its function.

Bernard takes the opposite course. He starts with the function, or physiological phenomenon, and endeavours by his experiments to determine the organ or organs which are concerned in its production. For example, in his investigations on the production of sugar in the circulation, his attention was first directed to the physiological fact that sugar makes its appearance in the living body; and it was only afterward that he was led to the discovery that this production takes place in the liver. This he calls the physiological method, because it is the function itself which is the first object of examination; and its localization, or connection with a particular organ, is a final result, at which he arrives subsequently. There can be no question that this is the true method, if for no other reason than that several organs sometimes combine to perform a single function, and on the other hand a single organ sometimes performs a complex function. Thus the movement of the blood in the arteries is a complex motion, resulting from the simultaneous action of the contractions of the heart and the elasticity of the arteries; and again the liver, which is a single organ, furnishes two secretions, the bile and the liver-sugar; which pass off in different directions, and are intended for different purposes.

In order to have a just idea of physiological phenomena, we must remember their mutual connection. They cannot be taken apart from each other, like the pieces of a Chinese puzzle, and studied separately; or, if we do so, it is only for the purpose of temporary convenience, and in order that we may understand them better in connection. Respiration, in the living body, is inseparably connected with excretion and digestion, the latter with secretion and absorption. One cannot go on without the other; and it is because we have sometimes made the mistake of regarding them as independent processes, that we have been led insensibly to adopt false views. Thus, in respiration, seeing oxygen inhaled and carbonic acid expired, we have regarded this as the whole history of the matter, and have supposed that the oxygen combined directly with the carbon of the blood to form carbonic acid. Further exa-

mination has shown us that the phenomenon is more complicated than this, and that the appearance of carbonic acid in the different tissues of the body is a part of many nutritive and excretory changes, which are no more closely connected with the absorption of oxygen than they are with other phenomena; those of digestion, for example, and metamorphosis. The function of respiration, therefore, in its true sense, is by no means localized in the lungs, or even in the blood, but is carried on throughout the entire body; its details, moreover, varying considerably in different organs, and being everywhere closely connected with other processes.

It is really of importance, therefore, that we should keep in mind this connection which exists between the different functions; and more particularly the manner in which the various organs unite in producing the phenomena of life. This connection cannot be better expressed than it is by Mr. Bernard himself.

"In the anatomical method," he says (page 15), "we take the organs one after another, and ask ourselves of each one, What is its use?"

"But though we can dissect apart all the different organs of the body after death, and isolate them from each other so as to study their form, their structure, and their relations, it is not possible to do so during life, while all these parts are acting in combination to produce a common effect. An organ does not live by itself. We may almost say, even, that it has no separate anatomical existence, for the limits which have been assigned to it are often, in this respect, purely arbitrary. It is only the entire organism that lives and acts. We can never get an idea of the action of any kind of mechanism by studying its separate pieces one after the other. So in studying physiology by a purely anatomical method, we may take the organism to pieces, but we cannot in this way learn the combined operation of the whole. This we can do only by observing the organs while they are in a state of activity."

The changes which the food undergoes in the process of digestion are of two kinds, physical and chemical. The physical changes—that is, mechanical division, trituration and mastication—are intended simply to prepare the food for the subsequent chemical operation of the various digestive fluids. The author remarks, in this connection, that the instincts of animals, which lead them to prefer particular kinds of food, are determined almost altogether by the physical properties of the alimentary substances, and not by their chemical constitution. The carnivorous species prefer animal food because their masticating apparatus is not calculated for the disintegration of hard vegetable substances, such as grains, stalks, nuts, &c.; while the vegetable-feeders have no organs suitable for the seizure of living prey or the laceration of animal flesh. The entire organism of the carnivora and herbivora is consequently adapted to the prehension as well as to the mastication of particular kinds of food; the carnivora being active, fierce, and crafty, while the herbivora are comparatively sluggish, timid, and simple. The organs of mastication, accordingly, which are regulated by the varying physical qualities of animal flesh, grass, grains, herbage, roots, fruits, &c., vary exceedingly in different animals. But the chemical constitution of all alimentary substances, whether animal or vegetable, is nearly the same. The albuminoid, oily, and saccharine elements present similar characters and reactions, from whatever source they may be derived. Consequently the digestive fluids and their chemical properties and actions are the same in both the carnivorous and herbivorous species. A carnivorous animal may accordingly be induced to use vegetable food if its physical properties be artificially modified so as to become adapted to his organs of mastication. A dog, for example, as the author remarks, will refuse to feed upon wheat or rye in the grain, and will even starve to death

with a supply of such food before him. But if it be ground and made into bread, he will then take it freely, and even subsist on it for a considerable time. On this account, it follows that the comparative physiology of digestion is more easily pursued; since there is less variation in the properties of the digestive fluids in different animals than might be anticipated.

In the second chapter, the author gives the literary history of the different *salivary glands*. He shows that, owing to the identity of their anatomical structure, they have usually been considered as similar in their functions. Bernard, however, has for some years pointed out, in his public courses, the very different properties of their secreted fluids. The parotid saliva, the submaxillary, the sublingual, and the secretion of the mucous follicles of the mouth, all have their distinctive characters, varying principally in the degree of their viscosity, and the nervous influences which regulate their secretion. The parotid saliva, for example, is excited by anything which puts in action the masticatory apparatus; the submaxillary by irritation of the lingual nerve, and by the contact of sapid substances; while the sublingual saliva and the buccal mucus are required mostly to assist in the process of deglutition.

The saliva, however, as a digestive agent, is a complex fluid resulting from the mixture of all the different secretions from the above glands. It consists of water holding in solution the various animal matters known as ptyaline, mucus, extractive, &c., with alkaline carbonates, chlorides, sulphates, lactates, earthy phosphates, and a minute quantity of sulpho-cyanide of potassium. With regard to the last named substance, Bernard is disposed to believe that it is not a necessary nor constant ingredient of the saliva. He has sometimes found it present, and sometimes absent, in cases where there was no evidence of any morbid condition of the system. When present, it appears to be mostly due to an alteration of the organic elements of the saliva; and the author is inclined to regard it as dependent, in some way, on caries of the teeth, since he has not observed it in persons whose teeth were entirely sound. If so, it should be considered as an accidental product; and in any case it appears to be of little or no importance, so far as regards the physiological properties of the saliva.

Some very interesting experiments are related on the *excretion of medicinal substances through the salivary glands*. Iodide of potassium, for example, introduced into the circulation, made its appearance in the parotid and submaxillary saliva almost instantaneously, while it appeared in the urine only after three hours. Ferrocyanide of potassium, on the other hand, injected into the bloodvessels, appeared in the urine in seven minutes, while no trace of it could be detected in the saliva, even at the end of four hours. These two substances, therefore, though both soluble in the animal fluids, and generally diffused through the circulation, pass out by the various glandular organs with very different degrees of facility. Another not less remarkable fact observed by the author, is that the same substance, introduced into the blood, will continue to appear in one secretion longer than in another. Thirty grains of iodide of potassium were introduced into the stomach of a dog, through a gastric fistula; and shortly afterwards the iodine made its appearance in both the urine and saliva. The next day it had disappeared from the urine, so that it might have been supposed to be entirely eliminated. In point of fact, however, it was still present in the saliva, and *continued to show itself there for a period of three weeks*. This was the more remarkable, since it will be remembered that this substance, after being introduced into the system, appears in the urine more readily than in the saliva, and that the time of its appearance in the urine varies with the quantity ingested; a large

dose appearing rapidly, and a small one requiring a longer interval. It is evident that the exact mechanism of these eliminations is not entirely understood.

The mechanism of the secretion of the saliva itself is also, to a certain extent, difficult of explanation. Those who like to simplify as much as possible all the vital phenomena, and reduce them to the exclusive operation of ordinary physical forces, have attempted to explain the passage of the secreted fluids through the glandular tissues by referring it to the simple effect of pressure in the bloodvessels, by which varying quantities of water, saline ingredients, and animal matters would pass out by exosmosis, in proportion to the amount of pressure exerted. This explanation, however, will not withstand the test of investigation. The author refers to some experiments of Ludwig's, in which he found, by applying his mercurial gauges at the same time to the duct of Steno and the artery of the parotid, that the pressure on the duct, from the secreted saliva, was considerably greater than that in the artery; so that the passage of the secreted fluids had really taken place in a direction contrary to that which would have been caused by the simple influence of pressure. Bernard himself states other facts, equally striking in this respect. He found, for example, that ferro-cyanide of potassium, which is not excreted by the parotid glands, is, however, readily absorbed by them, and if injected into the duct of Steno, will make its appearance in the urine; while, at the same time, it is not discharged with the saliva even of the gland into which it has been injected. All these facts show that the active agents in the process of elimination are the secreting cells of the gland itself; and that they have the property of absorbing particular substances, and of causing them to transude in a particular direction.

The author enters at length into the consideration of the *digestive properties of the saliva*. These he shows, however, to be much more of a physical than of a chemical nature. He does not, indeed, deny the property, which has been attributed to the saliva, of converting boiled starch into sugar. On the contrary, he describes it in detail, and gives many experiments of his own which were made with a view of ascertaining to which of the salivary secretions this properly belongs. He shows, however, that this action on starch does not belong to the fresh secretion taken directly from the parotid, sub-maxillary, or sublingual ducts, but only to the mixed fluids of the mouth which have begun to undergo a putrefactive change. Furthermore, it is not a property peculiar to the saliva, but exists also in various other animal fluids, morbid as well as normal, such as peritoneal and pleuritic effusions, mucous discharges from the bladder and rectum, infusions of mucous membrane, &c., which have been for a short time exposed to the contact of the air. These facts, it is true, are not incompatible with the supposition that the mixed saliva of the mouth may yet be intended normally for the digestion of starch. That question can only be settled by direct experiment on the living animal, after the ingestion of amylaceous substances; and the result of such experiments shows conclusively that though saliva, mixed in a test-tube with boiled starch, converts it into sugar, it does not have this effect when mingled naturally with the food in mastication and swallowed into the stomach.

"Consequently," he says (p. 158), "although one might be supposed to believe that, in the human subject, the saliva may transform starch into sugar during its passage through the mouth, on account of its remarkable activity as a mixed fluid, there are several reasons why we cannot admit this to be the case in the lower animals. In the first place, saliva cannot exert this action on raw starch, but only on that which has been boiled or *hydrated*; and ani-

mals do not usually take any amylaceous substances in this form. Secondly, the transforming influence of the saliva can only be exerted between the mouth and the stomach; since the food, when it has once entered the stomach, is no longer under favourable conditions to be acted on by the saliva, owing to the presence of the gastric juice, which interferes with it. We shall see presently what is the origin of this peculiar property which belongs to the mixed saliva, but not to either of the salivary fluids taken separately. What I wish to say here is that it is to be regarded, not as an essential, but rather as an accidental property of the secretion; since its action in the lower animals is extremely feeble, and even insignificant in the normal condition of the digestive apparatus. For if we give a dog even cooked starch with his food, it is found afterward in the stomach without having undergone any sensible modification."

These conclusions, to which Bernard has been conducted by direct experiment, have been corroborated by other observers, and are undoubtedly correct. They show how important it is to remember that the digestive process, though carried on by different digestive fluids, is a continuous process, in which these fluids become mingled together, and modify, to some extent, the action which each one would exert separately. The author shows, also, in a subsequent chapter, how starchy matters are really digested in the living animal, viz., by the intestinal fluids, which act upon them only after they have left the stomach and passed into the duodenum; these fluids, the most active of which is the pancreatic juice, being much more efficient than the saliva, and exerting a transforming influence on starch, not only in a hydrated, but also in its natural condition.

The real physiological action of the saliva, as already intimated, is a physical one. It is deduced from experiments which show that the quantity of the secretion which is poured out and mixed with the food, is regulated entirely by the physical condition of the alimentary substances. The mode by which this fact was ascertained is as follows: An animal of large size was taken, a ligature placed upon the œsophagus at the lower part of the neck, and an opening made into its cavity above the ligature. Various articles of food, previously weighed, were then administered to the animal, and, as they passed out at the œsophageal wound, were again collected and weighed afresh. The difference in weight showed, of course, the quantity of saliva which each one had absorbed during the processes of mastication and swallowing. One of the tables given by the author will be sufficient to show the nature of the results which were obtained.

Kind of food.	Weight before mastication.	Weight after mastication.	Difference; showing quan- tity of saliva.	Name of experimenter.
	Grammes.	Grammes.	Grammes.	
Straw . . . .	20	100	80	Lassaigne.
Hay . . . .	325	2000	1675	Hygienic Commission.
Hay . . . .	20	91	71	Lassaigne.
Oats . . . .	520	1168	648	Hygienic Commission.
Oats . . . .	46	100	54	Lassaigne.
Fecula and bran . .	250	725	475	Hygienic Commission.
Barley meal . . .	31	100	69	Lassaigne.
Green barley leaves and stalks . . .	67	100	33	
250 grammes fecula and bran, with 1000 grammes of water .	1250	1256	6	Bernard.

It will be seen, by glancing at the above, that those substances which require the largest quantity of saliva are dry stalks, hay, bran, &c. Green

leaves and stalks require much less; while bran and starchy matters, already sufficiently moistened with water, absorb only about two and a half per cent. of their weight while passing through the mouth and œsophagus.

The principal object of this secretion is, therefore, to moisten and soften the refractory kinds of food, and to prepare them for the action of those digestive fluids with which they are afterward to come in contact. Its importance in assisting the mastication of hard substances is well shown in one of Bernard's experiments in which he administered to a horse about one pound (500 grammes) of oats, which were easily masticated and swallowed by the animal in nine minutes. Bernard then divided both parotid ducts, so that the saliva ran away from the external wound instead of passing into the mouth. A similar quantity of oats being again administered to the animal, mastication went on with the greatest difficulty; so that at the end of twenty-five minutes nearly a quarter part of the grain still remained uneaten. The œsophagus had been tied and opened at the commencement of the experiment, and none of the first pound of oats had passed into the stomach. The difficulty and delay in masticating the second pound were not, therefore, owing to the animal's appetite having been satisfied, but merely to the absence of the parotid saliva.

The author finishes this part of the subject with the following *resumé* of the digestive properties of the saliva:—

"Finally," (page 167) "the saliva appears to exert little or no chemical action on the digestive process. If we follow, in fact, the starchy elements of the food through the alimentary canal, particularly where they are taken in a raw state, we find that they disappear and are transformed into sugar only in the small intestine, and by the action of other fluids than the saliva.

"The real action of the salivary fluids is, as the ancients formerly believed, purely physical in its character, and is subservient merely to mastication, taste, and deglutition. The experimental evidences in favour of this conclusion are of the most decisive character."

The above opinion, as to the digestive action of the saliva, corresponds essentially with that of most others. Bidder and Schmidt more particularly (*Verdaunungs-Säfte und Stoffwechsel*, Leipzig, 1852), who were at first very much inclined to regard this secretion as intended for the digestion of starch, have finally been led to conclusions similar to those of Bernard. They also have satisfied themselves that no sugar is to be found in the stomach of the living animal after feeding on starchy substances; the small quantity which may be produced by contact with the saliva in the mouth, or œsophagus, being immediately absorbed, according to them, or converted into lactic acid, and no further transformation of the starch taking place so long as it remains in the stomach. They believe, too, that the saliva is destined principally for the moistening and reduction of hard and dry alimentary substances, and is also subservient to what they call the internal circulation, or "interchange of fluids within the animal organism."

There is one very interesting question regarding the saliva, which we could wish had been more fully treated by the author, viz., that of the *entire quantity of fluid secreted* by the different salivary glands. Such an estimate has in fact been made by Bidder and Schmidt, and is referred to by the author; but it seems to us that he rather undervalues their conclusions. It is very true, as Bernard observes, that the quantity of secreted fluid varies much from time to time, according to the period of the day, and the quantity and quality of the food. All the secretions, indeed, are liable to such a variation, and any estimate of their total quantity, which pretends to be absolutely exact,

can only give rise to mistaken ideas in physiology. But the same thing may be said of their quantitative analysis. The relative quantities of water, chloride of sodium, animal matters, etc., not only in the saliva, but also in the blood, gastric juice, urine, and all animal fluids, vary, within certain limits, every hour, and almost every minute. Such a variation is characteristic of the mixed fluids of the living organism, and separates them by a wide interval from inorganic substances of definite chemical composition. But that does not prevent us from giving always, in books on physiology, the quantitative analysis of the blood, urine, saliva, etc.; only we understand always that such analysis is approximative merely, and not exact or constant. There can be no doubt that the different secretions are poured out every day in quantities which vary within certain limits, according to circumstances, but which are still capable of an average estimate.

The methods adopted by Bidder and Schmidt, with regard to the saliva, were as follows:—

They found that, in a dog weighing thirty-four pounds, they could obtain in one hour, from a single submaxillary duct, 84.6 grains of saliva; so that both submaxillary glands would furnish, during the same time, 179.2 grains. From a single parotid duct they obtained, in one hour, 131.95 grains; so that both parotids would give, per hour, 263.90 grains. These results, applied to a man weighing a hundred and forty pounds, would give, during twenty-four hours, 16,230 grains for both submaxillaries, and 25,305 grains for both parotids. The authors reduce this estimate, however, one-half, in order to allow for the unnatural stimulus which may have operated on the dog while under experiment; and so come to the conclusion that the entire daily quantity, for the human subject, is not less than 20,768 grains, or  $2\frac{9}{10}$  pounds. Direct experiment on their own persons gave even a larger quantity than this. The experimenter found that by collecting all his own saliva, without applying any unnatural stimulus, but simply taking care that none of the salivary fluid was swallowed, from 1,500 to 1,800 grains were secreted in the course of an hour. This would give for the whole day (subtracting seven hours for sleep) fully 23,000 grains, or a little over three pounds and a quarter for the entire quantity of saliva in the human subject. It is evident that although this quantity cannot be regarded as altogether exact, it is certainly not overestimated; and it shows that the saliva, as well as most of the animal fluids, are really secreted in much greater abundance than was formerly supposed.

From the saliva, the author passes on to the consideration of the *pancreatic juice*. Indeed, it is one of the principal objects of his course to institute a comparison between the pancreatic and salivary fluids; and to show that, notwithstanding the apparent identity in anatomical structure between the glands, the fluids secreted by them are entirely different in their physiological properties. He also illustrates, in a very striking manner, the “physiological method” of investigation, as he calls it, which we have already alluded to in a former part of this article, by detailing the mode in which he was led to discover the function of the pancreatic juice. It was, as he says, while studying the digestion of different substances in the alimentary canal, that he observed that *oily* matters were unchanged so long as they remained in the stomach, and could even be recognized for a short distance from the pylorus in the small intestine. Soon afterward, however, they disappeared, became changed by digestion into chyle, and filled the lacteals with a white milky emulsion. The place where this digestion took place, however, varied in different animals. For while in the rabbit the chyloferous vessels became filled only at the distance of a foot or more from the pylorus, in the dog they

commenced to show themselves almost immediately below the pyloric orifice. On searching for some anatomical cause for this difference, Bernard found that the pancreatic duct opened differently in these animals; in the dog near the pylorus, and in the rabbit twelve or fourteen inches lower down. The alteration of the fats in the intestine, therefore, corresponded in place with the opening of the pancreatic duct, and pointed to the secretion of this gland as the active agent in their digestion. It was afterward shown, by placing the two substances in contact with each other, that the pancreatic juice did really exert a decisive action on fat; and one of its most important functions was in this way finally ascertained.

Before giving the physical and chemical properties of the pancreatic juice, Bernard points out an anatomical peculiarity of the gland, which has been altogether ignored by anatomists, or too lightly passed over; that is, the existence of two pancreatic ducts, both in the human subject and most quadrupeds, such as the dog, cat, horse, etc., opening into the intestine within an inch or so of each other. This arrangement, which has usually been considered as an accidental irregularity, is asserted by the author to be the constant and normal disposition of the parts. In the rabbit alone, though two ducts exist, the upper is usually so minute as not to be of any practical importance. The above fact, of course, is very essential to be known in operating on the pancreas for purposes of experiment, and its neglect has sometimes given rise, as the author afterward points out, to serious physiological errors.

The physical and chemical properties of the pancreatic juice are given by the author in detail. It is a clear, colourless, viscid, alkaline fluid, coagulating completely by the application of heat, and also by admixture with alcohol and sulphate of magnesia in excess. Its composition, according to Bernard, is as follows:—

Water . . . . .	90 to 92 per cent.
Solids . . . . .	10 to 8 “ “

The solid matters consist of—

An animal substance, coagulable by alcohol, and containing always lime in combination . . .		90 to 92 per cent.
Carbonate of soda	} . . . .	10 to 8 per cent.
Chloride of sodium		
Chloride of potassium		
Chloride of lime		

One of the most remarkable properties of this secretion, and one that had been previously noticed by Tiedemann and Gmelin, is that of *giving a red colour on the addition of chlorine*. This reaction, Bernard finds, does not belong to the pancreatic juice in its perfectly fresh condition, but only after it has become slightly altered by putrefaction. Still, as no similar appearance is manifested by any other of the gastric or intestinal fluids at any period of their decomposition, it may be used to advantage in detecting the presence of pancreatic juice in any part of the alimentary canal.

Another property, still more characteristic, belonging to this fluid, is that of emulsifying and acidifying fatty substances. This property, which also belongs to the substance of the pancreas, is used by Bernard as a decisive test for the presence either of the pancreatic juice or the tissue of the gland. His mode of applying it is as follows: He takes a small quantity of the suspected fluid or tissue, and places it upon a slip of glass together with a little

perfectly neutral fat or oil, and a strong solution of litmus, and then covers the mixture with another glass slip. In a short time, provided the whole be kept at the temperature of eighty to a hundred degrees F., the litmus solution begins to turn red, and its colour is soon entirely changed. The oily matter is decomposed with the production of a fatty acid, which is readily detected by its reaction with the litmus. This property is regarded by Bernard as so thoroughly peculiar that he relies on it entirely for the detection and recognition of the pancreatic tissue, wherever it may present itself, and under whatever different forms. Thus he finds that the duodenal glandulæ, which were regarded by Brunner as similar in character to the pancreas, are in reality entirely destitute of this property, and have no real physiological connection with the pancreas. The cæcal tubes which surround the upper part of the duodenum in certain fish, and which have been regarded as an elementary or incomplete pancreas, are also destitute of any such action on fatty substances; while other glandular organs of a different shape may be recognized by the same test as really supplying the place of the pancreas of the higher animals.

The author's statements, however, with regard to the acidifying influence exerted by the pancreatic juice on fats, have been to a certain extent misunderstood. Bernard recognizes two different actions exerted by the pancreatic juice on oil, when the two fluids are mixed in a test-tube. First, a physical action, by which the oil is reduced to a state of minute subdivision, or *emulsified*; this effect is instantaneous. Secondly, a chemical action, by which the oil is *decomposed*, with the liberation of a fatty acid and glycerine; this effect requires a certain time for its accomplishment. It has been represented that Bernard regarded both these effects as taking place during the natural process of digestion; an opinion easily shown to be erroneous. But no one understands better than our author that an action which takes place with an animal fluid in a test-tube, does not always show itself in the same way in the interior of the living body; and that direct experiment is the only way of decisively solving the question. He speaks of the acidifying action of the pancreatic juice only as a property which may be used as a test for that fluid, and as only important in this respect. Of the two different actions, mentioned above, which it exerts on fat, the first alone takes place in the natural process of digestion. The fat is emulsified in the intestine, but it is not decomposed.

"We will now recur," he says (page 320), "to the question which presented itself to us at the commencement of this chapter; that is, whether oleaginous matters are really decomposed during digestion into a fatty acid and glycerine, and whether certain ingredients of the pancreatic juice are absorbed in company with them. With that view, we must examine the condition of the fat as it exists in the chyle; that is, after its absorption, so as to ascertain the chemical modifications which it may have suffered.

"When we examine the oleaginous matter of the chyle, we always find it in a state of minute subdivision, but perfectly recognizable under the microscope by its physical characters. But it is impossible to detect in it, by chemical means, the existence of glycerine or a free fatty acid. So that the fat, as it exists in the chyle, has been physically modified, but does not seem to have undergone any chemical alteration. Even if we introduce into the intestine certain fatty acids, such as the oleic acid of commerce, we cannot afterward detect their presence in the chyle."

Bernard, therefore, determines the pancreatic juice to be the active agent in the digestion of the fatty ingredients of the food. He rests this conclusion upon several different facts. First, the pancreatic juice, mixed with oil in a test-tube, instantly makes a complete and permanent emulsion; an effect which is produced by no other digestive fluid. Secondly, fat is actually emulsified

in the intestine during life, and is absorbed in this condition by the lacteals. Thirdly, this emulsion of fat and the milky appearance of the lacteals occur in the intestine only at or below the orifice of the pancreatic duct. Fourthly, when the pancreas is injured or atrophied, by the injection into its tissue of foreign matters, fatty substances taken with the food pass out unchanged with the feces; and, fifthly, various instances are recorded, in the human subject, where undigested fatty substances have been discharged with the stools, and in which a more or less complete alteration of the pancreas has been found to exist at the *post-mortem* examination.

One of the most interesting portions of the book is the thirteenth chapter, which is devoted by M. Bernard to a critical review of the various objections which have been made against his doctrine of the digestive action of the pancreatic juice, and to a refutation of them. So novel and important a discovery as that which he announced some years ago, of the action of the pancreatic fluid on fatty matters, could not be received without a very close and searching examination; and the objections which have been made to it from time to time have been very numerous, and, in some instances, very important and positive. The author, however, does not yield in the present volume any important point, but defends his doctrine with the greatest confidence and ability. Some writers have even disputed the physical properties which he attributed to the secretion. They have denied that it was coagulable by heat; and that it possessed any emulsifying power on fat, superior to that of the bile, saliva, and other animal fluids. Bernard shows in what manner they have been deceived. The *fresh* juice, taken within a few hours after the opening of the pancreatic duct, and while the neighbouring parts are still free from inflammation, he asserts to be always moderate in quantity, viscid, and coagulable by heat as completely as the white of egg. In this state, the emulsion which it makes with fat is complete and permanent, while that made with bile or saliva is incomplete and soon separates into its oily and serous portions. But if the animal be in an unhealthy condition, or if the fluid be drawn after irritation and peritonitis have been set up about the pancreas, the secretion is then more abundant than natural, thinner, but slightly coagulable, and incapable of acting with energy on fatty substances. It is now generally conceded, we believe, that he is right in this particular. The pancreatic juice, obtained according to his directions from the healthy animal, does certainly, in many instances, possess all the properties of coagulability and emulsifying power which he ascribed to it; and it seems altogether probable that those writers who have denied their existence have been misled by experimenting upon an unnatural and depraved secretion.

Frerichs and Lenz, furthermore, have undertaken to show that fatty matters may be digested and the lacteals become filled with chyle, after the pancreatic juice has been excluded from the intestine. For this purpose, they tied the pancreatic duct in cats, and afterwards, feeding the animals with fatty substances, found the lacteals well filled with milky chyle. In some instances, they tied the intestine below the pancreas and then injected into its lower portion oily fluids and milk; after which they also found the fatty matters absorbed, and the lacteal vessels filled. Bernard points out the very singular defect in this latter experiment, that the milk, which the observers injected into the intestine, was itself an oily emulsion, and would, therefore, naturally be taken up by the lacteals without the assistance of any further digestion. As to the former observation, in which a ligature was placed upon the pancreatic duct, he rejects it altogether as a conclusive experiment, since in cats, as in dogs and in the human subject, there are normally two pancreatic ducts,

freely communicating with each other; a fact of which the experimenters seem to have been ignorant. Bernard gives several drawings of these double pancreatic ducts in the cat, showing their communication with each other, and the varieties of their disposition. One of these ducts alone having been tied, the secretion could readily escape by the other. The pancreatic juice was not, therefore, as the experimenters supposed, excluded from the intestine, and the fat was of course digested and absorbed as usual.

One of the most important of Bernard's experiments, however, is that which he performs on the rabbit, and in which he shows that the digestion and absorption of fat in the intestine corresponds with the orifice of the pancreatic duct. In this animal, the biliary duct opens as usual just below the pylorus, but the pancreatic duct, instead of entering the intestine in company with the biliary, opens some twelve or fourteen inches lower down. Bernard's experiment consists in feeding the animal with fatty substances and then killing him; after which he finds that there are no milky lacteals distributed upon the intestine between the biliary and pancreatic ducts, but that they immediately become abundant below the level of the latter. Bidder and Schmidt made the following remarkable objection to this experiment. They say that Bernard killed his animals three or four hours after feeding, and just at the time that the fatty matters had all been evacuated from the stomach, and carried down the intestine to the point of opening of the pancreatic duct, and that it was simply on this account that he found lacteals below this point and not above it; but that if the animals had been killed at an earlier period, say one hour after feeding, lacteals would have been found also at a higher level, and above the point of opening of the pancreatic duct.

This explanation, however, is rejected by the author as destitute of foundation.

"I have often satisfied myself," he says (p. 344), "of its incorrectness, by continuing to feed the animals with fatty substances at short intervals, so as to keep a constant supply of fat passing into the system. We can then see, notwithstanding the stomach and duodenum both contain fat, that this substance is fully emulsified only below the level of the pancreatic duct."

In this manner he refutes the objections of his opponents, and maintains his ground on almost every point in dispute.

The author, however, does not regard the digestive action of the pancreatic juice as confined to fatty substances. On the contrary, he shows that it is also the active agent in the solution and saccharification of starch. Amylaceous matters, when subjected to its action, are speedily disintegrated and converted into sugar.

"The action of the pancreatic juice on starch," he says (p. 333), "is shown more directly still in the living body. If we feed a dog with boiled amylaceous matters, and afterwards examine the contents of the alimentary canal, we find that in the stomach the starch is still unaltered, since it strikes a blue colour with iodine, and does not reduce the salts of copper; while in the duodenum it is no longer recognizable as starch, but gives the reaction of sugar immediately after it has come in contact with the pancreatic juice."

Bernard maintains that the digestive properties of this secretion are not exhausted by the starchy and oily elements of the food; but are exerted also in a very essential manner on the azotized or albuminoid substances. These matters, according to him, are mostly dissolved by the gastric juice; but this solution is neutralized and precipitated on coming in contact with the bile, so that all the albuminoid elements of the food must be again dissolved before they can be absorbed. The agent of their re-solution he believes to be the

pancreatic juice. He attributes to this secretion, therefore, what will be considered by many an excessive importance in the digestive process. He regards it, indeed, as he himself says, as the *most active* agent of all the digestive fluids; exerting an essential influence upon all the different alimentary substances—oily, amylaceous, and albuminoid—and preparing them all for their final absorption from the cavity of the intestine. His theory of the very intricate changes which take place in intestinal digestion is too complicated and incomplete to be presented here. In fact, there are certain statements of his, with regard to this part of the digestive process, which do not correspond with those of other observers, and which must still be regarded as of very uncertain value. It must be acknowledged that there are yet many points in intestinal digestion which are, to a great extent, involved in obscurity. We can easily obtain separately the gastric juice, bile, and pancreatic fluid, and examine artificially their action on the different elements of the food. But how these actions are modified, or what new actions are set up in the interior of the intestine, when these fluids are mingled together and operate upon a mixture of half-digested oily, starchy, and azotized substances, is a question which will require for its complete solution more laborious and persevering study than has yet been devoted to it. The influence of the bile alone, and the modifications which this important fluid itself suffers in the intestine, are still but very imperfectly understood; and the suggestions of M. Bernard with regard to it, in the present treatise, are too vague and general to give any definite satisfaction on this point. We shall, therefore, pass over his account of the successive action of the intestinal fluids, remarking only that he is evidently aware of the difficult nature of the subject, and conscious of the deficiencies under which we labour in regard to it.

The last chapter of the book is occupied with some exceedingly just and philosophical observations on the processes of nutrition in general. The author points out the erroneous nature of certain opinions which have been prevalent with regard to this subject, and shows how they must be modified. Nutrition, for example, has been regarded as a process by which the different proximate principles, albumen, sugar, oil, &c., are simply absorbed from without, suffering only a kind of solution or liquefaction in the intestine, and *transported*, so to speak, directly into the interior of the body; so that the albumen, fat, and sugar of the food become the albumen, fat, and sugar of the body. This is called "direct" nutrition. But Bernard shows that no such direct nutrition takes place. The proximate principles of the body are formed in the interior of the living organism. It is only their materials which are absorbed from without. The fibrine of the blood, the musculine of the muscles, and the osteine of the bones are not absorbed under that form from the intestine, even when they have been taken as food; but must be reconstructed, after passing through essential modifications.

"In a word," says Bernard (p. 495), "physiologists imagined a direct mode of nutrition, that is, a sort of migration of the proximate principles, ready formed, from the exterior into the body of the animal; and it was a favourite notion to compare this direct nutrition of animals with the different process attributed to vegetables, which were supposed to construct the proximate principles out of ultimate elements. But such an exclusive theory as this cannot be sustained. We have already seen, from what we know of the production of liver-sugar, that it is not necessary for an animal to be supplied with food containing all the proximate principles which go to make up his body. It is undoubtedly necessary that he be supplied with the elements of these immediate principles: but he has the power of modifying them so as to form some new proximate principles out of them. The slightest reflection will convince us

that nutrition does not take place in this direct manner, and that, so far from absorbing passively its proximate principles, the animal organism takes a very active part in their preparation. Not one of the albuminoid elements of the living body, for example, can be absorbed under its own form. It is plain enough that the fibrin and albumen of the blood are not taken up from the intestine as fibrin and albumen. The fatty matters, again, do not exist ready formed in the food; for the solid fats of beef and mutton are not to be found under the same form in the vegetable substances which these animals use as food."

This is certainly the correct and truly physiological view to take of the nutritive process. The elements of the body are undergoing constantly a transmutation, and the new substances are undoubtedly produced, in most instances, by metamorphosis or decomposition, in the very organ or tissue where they first make their appearance. The coagulable matter of the pancreatic juice, for example, which is different from the albumen of the body, is produced in the substance of the pancreas itself. So when the blood is modified in passing through an organ, it is not that its own ingredients are directly changed, but that it absorbs the new substance from the glandular tissue in which it is produced. Thus the sugar of the liver, which is different from the sugar of the food, is formed in the hepatic tissue itself, and absorbed from it by the blood, to undergo further transformation elsewhere; and it will continue to be formed in the liver, though no starchy or saccharine substance be taken with the food. Nutrition, in the animal body, is not a direct and simple process, but an indirect and complicated one.

Bernard, however, draws, as we think, an erroneous conclusion from the above truths. He maintains that animals do not require to be supplied with food containing all the different kinds of proximate principles—albuminoid, oily, and amylaceous—but that they can manufacture the two latter for themselves by the nutritive processes, while the albuminoid substances are the only ones absolutely indispensable. The truth is that, in the herbivorous and omnivorous animals at least, though the *particular kinds* of albuminoid, oily, and saccharine substances peculiar to the body are not necessarily present in the food, yet *substances belonging to each class* are requisite for the proper maintenance of the organism. Carnivorous animals, it is true, may do without starchy and saccharine matters, but they require both fatty and albuminoid substances. Magendie found that dogs fed exclusively on sugar or fat died with symptoms of disordered nutrition; but it has since been found that dogs fed on pure albumen or pure fibrin die just as surely, though after a longer interval. The instinct of the animal revolts after a time at such food, and craves oleaginous substances. In the case of the human subject, an exclusive diet of animal food and fatty matters becomes, after a time, intolerable, and the patient experiences an irresistible longing for vegetable food containing starch or sugar. The albuminoid elements can be dispensed with for a shorter period than the rest, because they form a larger proportion of the entire mass of the body; but the others, even the inorganic substances, are finally indispensable also. A man may be starved to death at last by depriving him of common salt or phosphate of lime, just as effectually as if he were deprived of albumen or oil. The natural instincts, as regards the selection of food, are the only unerring guides in this respect; and we cannot neglect their indications, or replace them by any artificial rules of diet.

The author takes also a somewhat different view of the nutrition of vegetables from that which has usually been received by physiologists. While animals require for their maintenance a supply of proximate principles, starchy, oleaginous, or albuminoid, plants are said to require only the ulti-

mate chemical elements of these principles, or their simplest inorganic compounds. They are said to absorb from the exterior only water, carbonic acid, and ammonia; and are thought to construct out of these materials the cellulose, gum, sugar, and gluten which make up their fabric. It has also been a favourite idea with chemists to indicate a kind of antithetical relation, in this respect, between animals and plants. Plants are regarded as deoxidizers, animals as oxidizers; plants as the fabricators, animals as the destroyers, of organic matter. It is now acknowledged, however, this cannot be regarded as expressing exactly the true relation of animals and vegetables. Animals, as already shown, not only destroy, but also produce particular proximate principles, such as sugar, &c., from materials derived from without. Plants, on the other hand, not only produce and accumulate sugar, gum, and gluten at one period of their growth, but also destroy these substances spontaneously at another.

Bernard maintains also that plants require, as well as animals, proximate principles for their support, and denies that they can flourish when supplied only with water, carbonic acid, and ammonia. It must be confessed, indeed, that the evidences in favour of the opposite opinion, when critically examined, are much less satisfactory than we have been accustomed to think. The vegetable-bearing soil always contains more or less animal and vegetable matter in process of decay; and the more abundant these decomposing substances, the more luxuriant is the vegetation. The habits of certain parasitic plants, which fix themselves upon the bodies of other vegetables or of animals, seem certainly to indicate that they require organic matter in some form for their support. At all events, the question must be regarded as still unsettled.

It is evident, from what has been said, that the nutritive changes which take place in the interior of the body are complex and incessant. The materials which are introduced from without, far from being simply transported and fixed in the animal frame, undergo ceaseless transformations and decompositions, which result at last in their total destruction; the movements of nutritive and destructive assimilation going on together, and giving rise to new products in different parts of the body; the substances which are finally expelled representing the last stage in their progressive metamorphosis.

"It is during these incessant transformations," says M. Bernard, "that those chemical phenomena take place in the organism, which require for their support the concurrence of oxygen. The nature of these phenomena, however, is very imperfectly understood; and though we are acquainted with the two extremes of the process, though we know that oxygen is absorbed and carbonic acid exhaled, that does not give us any information as to the intervening phenomena; any more, to quote the words of an eminent chemist, than we can tell what is going on within the walls of a house, by seeing who goes in and who comes out of it. All these intervening phenomena are, therefore, as yet unknown to us; and it is only by means of physiological experiment that we can ever hope to discover their nature."

The treatise of Bernard *Sur le Pancréas et sur le rôle du Suc Pancréatique*, the title of which also stands at the head of the present article, contains, in a slightly different form, nearly everything on the pancreas and the pancreatic juice to be found in the *Leçons de Physiologie*. It is printed, however, in superior style, and is accompanied with very elegant coloured steel plates, showing the physiological congestion of the pancreas during digestion, the atrophy of the organ produced by injecting it with fat, and the distended lacteals of the rabbit, showing their situation and origin. It is admirably arranged as a monograph, and will long retain its place as the most complete work on the subject.

J. C. D.

ART. XIII.—*Pathological Chemistry, in its Application to the Practice of Medicine*. Translated from the French of MM. BECQUEREL and RODIER. By STANHOPE TEMPLETON SPEER, M. D., &c. &c. London, 1857.

THIS work, which was published in France in 1853, is now for the first time presented to the public in an English dress. For some books, an interval of four years would be a serious delay in the translation. But in this instance the original work is of so elaborate a character, and contains the results of so much laborious investigation, that but little of it has been in any degree superseded by subsequent publications. It is an attempt to collect and arrange in a convenient form all which is at present known of the morbid alterations in the composition of the animal solids and fluids, and to apply this knowledge, so far as possible, to practical medicine. The authors draw largely on the previous valuable treatises of Simon in Germany, and of Andral and Gavarret in France. They add also the results of very many analyses of their own. The amount of time and labor which they have themselves contributed to the contents of the work, may be estimated from the number of analyses to which they have subjected the blood in two different series of investigations. They announce (page 159) that they have made twenty-eight different analyses of the blood in Bright's disease; and they mention in another place (page 72) with regard to the abnormal existence of sugar in the circulating fluid, "it is as the result of upwards of a thousand analyses of the blood;" that they feel authorized to affirm that, "if sugar exists in the blood of persons suffering from other diseases than diabetes, the fact is extremely rare and exceptional."

In the preface they point out, in a very distinct and comprehensive manner, the various methods of chemical investigation adapted to different purposes. The first and simplest of these is the *elementary analysis* of ordinary inorganic chemistry. By this method we become acquainted with the various chemical elements; as sulphur, oxygen, iron, chlorine, and the like, the mode in which they unite with each other, their combining equivalents, chemical affinities, &c. This furnishes, of course, the starting-point, the necessary preliminary from which all subsequent investigations of a chemical character are to be pursued. The knowledge of the chemical elements, their reactions and binary combinations, furnish the *tools* which the physiological and pathological chemist is afterward to use in his examination of organized bodies.

But elementary analysis alone will give little or no information of value as to the nature of these organized bodies. They differ from inorganic substances not in their elementary, but in their proximate constitution. They are made up of a mixture of *proximate principles*, such as sugar, albumen, fat, &c., which have very different properties from the ultimate elements that compose them. When chemists, therefore, undertook the examination of the animal fluids by the same process which they had been accustomed to apply to inorganic substances; when they contented themselves with extracting and weighing the carbon, oxygen, hydrogen, sulphur, and phosphorus, it was soon found that this mode of procedure led to no practical results, and it was consequently abandoned for the more direct study of the proximate principles themselves. It then became the object of the investigator to separate the albumen and fibrin of the blood, the saline ingredients of the animal solids

and fluids, and the various gaseous, oleaginous and crystallizable substances which unite to form the mass of the body, and to make their physical, chemical, and physiological properties the subject of a distinct investigation.

This inaugurated a second epoch in physiologico-chemical study; an epoch quite distinct from the first, and carrying the science much beyond the farthest point which it could have attained by the method of elementary analysis. It required, however, some years to perfect the methods of examination requisite for its successful pursuit; and even to enable physiologists and pathologists to comprehend how it really ought to be carried on. Proximate principles were for a time sought for by rough and inappropriate methods of analysis. Chemists attacked the animal solids and fluids by reagents which altered and decomposed their ingredients; so that the innumerable substances obtained by their analyses, far from representing the real constitution of the analyzed fluids, were only the artificial products of their decomposition. Subsequently, this error was corrected, and more careful methods of analysis were adopted, which simply separated the proximate principles from each other; and exhibited them as nearly as possible in a natural condition.

Still, the study of the proximate principles alone, though conducted in the best possible manner, is incapable of giving a complete idea of the normal character and pathological alterations of the *animal fluids*. These fluids are never composed of a single proximate principle. They are always mixtures of several, intimately blended together in certain proportions, and modifying or masking, by the fact of their association, the characters which each one would possess separately. A third series of investigations, therefore, necessarily follows upon the two former, in which the animal fluids, with their physical and other properties, are studied as a whole; in which the relative proportions of their proximate principles are examined, and the modifications which they suffer in disease ascertained. A familiarity with these separate ingredients and their individual characters is therefore necessary; but the study of physiological and pathological chemistry is only in reality begun when we investigate the blood, urine, secretions, &c., as they are presented to us by nature; that is, as complex fluids, whose peculiar properties result directly from their mixed and complicated structure.

This method is termed by Becquerel and Rodier, the *synthetical* method, in contradistinction to the two former, which are more exclusively analytical in their character.

"It is thus," they remark (page ix), "that in inorganic chemistry the composition of rocks, earths, and minerals has been studied: while, by the application of chemistry to the vegetable kingdom, the composition of the different parts of plants, of their juices, fruits, &c., has been in great measure elucidated.

"Lastly, it is thus that in animal chemistry the composition of each organic tissue, and of the fluids (such, for example, as the *blood*, the *milk*, the *urine*, &c.), is ascertained; and the different modifications investigated, which each may undergo in health and disease.

"It cannot be denied that this method of procedure, more especially as regards animal chemistry, is far more useful to the physiologist and physician than the mere study of proximate principles."

The entire book is divided into six chapters. Of these, the first is devoted to the examination of the *lymph* and the *chyle*; as the two fluids which contribute to the formation of the blood. The second gives an account of the *blood*; its normal constitution, with the variations which it may suffer within the limits of health, and the morbid alterations to which it is subject in dis-

ease. The third chapter comprehends the study of the *fluids secreted by the conglomerate glands*; saliva, bile, urine, pancreatic juice, spermatic fluid, milk, and tears. The fourth is devoted to an examination of the *products of secretion of the organic membranes*; gastric juice, mucous and cutaneous secretions, and serous effusions. The fifth comprises what is known of the *chemical composition of the solid tissues*, muscular, glandular, nervous, &c.; while the sixth is devoted to an examination of *newly-formed pathological products*, of which the most important are pus, tubercle, and cancer.

This arrangement cannot be regarded as altogether correct in a physiological point of view. The gastric juice, for example, is separated from the other digestive fluids, and included in the same chapter with mucous and cutaneous secretions and serous effusions; while in another chapter we find associated together such totally incongruous fluids as the pancreatic juice, the spermatic fluid, and urine. Still this is of but little consequence so far as regards the object which the authors have in view; since they do not treat of the morbid action of these fluids, but only of their composition and the variations to which this is subject in disease.

The second chapter, or that which treats of the *blood*, is by far the most elaborate and important in the book. After giving the history of the pathological chemistry of the blood from the earliest epoch, it goes on to speak of the constitution of the circulating fluid in health, and also, what is very important, of the most appropriate *methods of analysis*. The varying results of the analytical examination of the blood have depended on two distinct causes. One of these causes is a natural one and cannot be avoided. It results from the varying constitution of the blood itself, in different parts of the circulation in the same individual, and even in the same parts of the circulation in the same individual at different times. This is a cause of discrepancy which is only now beginning to be thoroughly appreciated by chemists and physiologists, but which must, of course, exert the greatest influence on the results of analysis. The other cause of the variation to which we refer is the difference in the methods of analysis resorted to by different operators. Some of these methods are of themselves false and erroneous, and at all events, in the examination of so complicated a fluid as the blood, particularly for purposes of comparison, it is of the first importance that all the analyses should be conducted on the same principle; so that the errors, if any exist, may be of the same character in all cases, and may still allow a comparative estimate of the results. Otherwise these errors would be liable either to conceal or exaggerate the variations in composition really attributable to disease.

The authors have described in detail the method of analysis adopted by themselves in operating upon the blood. It is similar to that proposed some time since by M. Dumas, though applied in a somewhat different manner. The entire process is made up of three different series of operations. The first has for its object the determination of the density of the blood and of the serum, and the weight of the fibrin, the globules, and of the solid matters of the serum taken in the aggregate. It consists in receiving the blood, as it flows from the vein, in two separate vessels. The first portion is whipped with an osier stick to separate the fibrin, which is then washed, dried and weighed. The defibrinized residue is then evaporated to dryness and weighed, by which, bringing into calculation the weight of the fibrin, the relative quantity of water and solid ingredients in the entire blood is ascertained. The next part of the operation has for its object the determination of the density and solid ingredients of the serum alone. For this purpose, the second por-

tion of blood, which has not been defibrinized, is allowed to stand, coagulate and separate spontaneously into clot and serum. The serum is then poured off, dried and weighed. The density of both the defibrinized blood and the serum has been previously taken by weighing in the specific gravity bottle.

From these data the solid and fluid ingredients of both the entire blood and the serum are estimated. Suppose, for example, that 100 parts of defibrinized blood afford 20 parts of solid matter and 80 parts of water; and that 100 parts of fluid serum give 10 parts of solid matter and 90 parts of water. The remainder of the calculation is given by the authors, as follows:—

“These processes being achieved” (page 22), “we possess the necessary calculations for ascertaining the weight of the globules and of the solid matters of the serum, contained in 100 grammes of defibrinized blood; and as all the water of this defibrinized blood is due to the serum, we make the following calculation:—

$$80 : x :: 90 : 10, \text{ or } x = \frac{80 \times 10}{90} = 8.8.$$

This number, 8.8, represents the sum total of the solid matters of the serum contained in 100 grammes of defibrinized blood; and on subtracting it from 20, which represents the weight of this blood when dried, we obtain 11.2, which stands for the weight of the globules; and on referring our calculation to the standard of 1000, we obtain the following result:—

	Grammes.	Oz.
Water . . . . .	800	= 25
Globules . . . . .	112	= $3\frac{1}{2}$
Solid matters of the serum . . . . .	88	= $2\frac{1}{2}$

The weight of the fibrin has already been ascertained by the first process, and is now to be added.”

The second series of operations has for its object the determination of the weight of the albuminoid, fatty and extractive matters. For this purpose the dried serum is taken and treated successively with boiling water and boiling alcohol, which separate the soluble extractives and fatty matter, while the coagulated albumen remains behind.

The third process is intended to ascertain the proportion of inorganic matters present in the blood. The defibrinized blood, which has already been dried in an earlier part of the analysis, is burnt, powdered and calcined. This part of the operation, the authors state requires considerable precaution. In the first place, because if the heat be too moderate, all the charcoal will not burn; and secondly, if it be too intense an error will be committed in regard to the quantity of chloride of sodium, owing to the volatility of this salt at a very elevated temperature.

“But whatever precautions be taken,” they say (page 24), “it is almost impossible to prevent the volatilization of a certain quantity of this salt, and hence the proportion of chloride of sodium, as given in the analysis of the blood, usually falls below the mark. The process, however, having always been carried on in the same manner, and by the same experimenter, we may suppose, without much fear of being mistaken, that the amount of chloride thus volatilized is about the same in every case, and that thus the relative proportions remain identical. It is, however, necessary to be forewarned respecting this almost inevitable chance of error.”

The calcination of the residue having been completed, the soluble salts are removed by pure water, the chlorides thrown down by nitrate of silver, and the sulphates, carbonates, &c., estimated from the quantity of saline matters still in solution after the separation of the chlorides. The phosphates are then dissolved out by acetic acid, which leaves the iron of the globules behind, under the form of peroxide.

The authors agree, however, with the majority of physiological chemists at the present day, in believing that the iron does not really exist in the globules under the form of an oxide; but that its oxidation takes place during the process of incinerating. It is not exactly correct, however, to speak of this substance, as the authors do, as existing under the form of "free iron" in the blood. In reality, as we have every reason to believe, it combines as an ultimate chemical element with the other ingredients of the hæmatin, in the same manner as the oxygen, hydrogen, or carbon. It is not, therefore, in the form of free or metallic iron in the globules, but forms an integral part or constituent of the hæmatin; and when this substance is destroyed by combustion, while the other elements escape as carbonic acid, watery vapour, &c., the iron oxidizes by the atmosphere, and remains behind as an insoluble peroxide. If this be the true view of the matter, it is quite incorrect to give, as the authors do in another place, in the analysis of the blood, the proportion of the globules and of the iron separately; since the latter is really a constituent part of the former.

There is another point, also, in the above method of analysis, which seems open to objection. The first series of operations, or that in which the relative and absolute quantities of water and solid matters in the blood and serum are ascertained, is based upon a principle which is, physiologically speaking, entirely incorrect. This principle presupposes, as the authors themselves state, that "*all the water contained in the blood forms part of the serum.*" Again, in the calculation already quoted a page or two back, they say: "*as all the water in the defibrinized blood is due to the serum,* we make the following calculation." Now this may be allowable in many cases for purposes of analysis, such as those required by our authors, where they simply desire to learn the comparative quantity in which water exists in the blood as a whole; but it is not true, strictly speaking, and may even lead practically to erroneous deductions. As much of the water of the entire blood belongs to the globules as to the serum. The globules, so long as they retain their natural moist condition, their size, flexibility, &c., consist of hæmatin and globuline, *united with a large quantity of water*; and when they are evaporated to dryness, the water which they lose certainly did not belong to the serum, but formed a part of the globules themselves. It is evident, also, that the inorganic saline matters, which remain after incineration of the defibrinized blood, that is, of the mixed globules and serum, have been obtained from both sources, and cannot be referred exclusively to either the one or the other.

The authors notice, in fact, a practical discrepancy which sometimes shows itself in their analyses, owing to this faulty mode of estimating the water of the blood. They found, for example, that in some instances, the results of analysis of the serum, in two different specimens, did not correspond with those of the analysis of the entire blood; the proportion of water to solid matters being the same in the two cases, so long as the comparative analysis was confined to the serum, but differing as soon as the comparison was extended to the whole blood. They explain this discrepancy at length (page 37), and reconcile the conflicting results as follows:—

"Two individuals," they say, "are bled. The composition of the blood when drawn is such that the results, when referred to 1000, are as follows:—

For the first . . . 850 of water, and 150 of solid matters.  
For the second . . . 750 of water, and 250 of solid matters.

"These two specimens having been set aside, and the separation between clot and serum having taken place, each is to be dried separately, and the result will be that, in spite of the difference between the aggregate results, the composition of the serum remains the same. Thus in the first case, 100 parts of serum contain 10 of solid matter, while the same proportion obtains in the second case, viz., ten per cent."

There would seem to be little difficulty in understanding the cause of this discrepancy. In fact, none would exist, if the authors had not started with the plan of regarding all the water of the blood as belonging to the serum. It is evident, that in this instance, the composition of the serum remaining the same, the difference in the total result may arise from either of two causes. First, the proportion of globules to the serum may vary; or secondly, the proportion of water to solid matters in the globules themselves may be different. The authors, however, take it for granted, that the variation depends on the former of these two causes; and reconcile the difficulty in the following way—referring still to the numbers given above:—

"If then we introduce into our calculations respecting the composition of the blood these identical specimens of serum, we have the following:—

( $x$  stands for the solid matters of the serum.)

In the first case, 850 of water :  $x$  : : 90 : 10, or  $x=94.4$ , which subtracted from 150, in order to obtain the weight of the globules, gives 55.6.

In the second, 750 of water :  $x$  : : 90 : 10, or  $x=83.3$ , which subtracted from 250, to ascertain the weight of the solid matters, gives 166.7."

That is to say, they take it for granted that the proportion of solid matters of the serum to the water of the serum, is the same as to the water of the entire blood; an assumption altogether unwarranted, and one shown to be actually erroneous whenever the globules and serum have been separately analyzed. With this postulate, however, the authors find no difficulty in reconciling the conflicting numbers.

"On combining," say they, "the above calculations we find:—

	In the first case.	In the second case.
Water . . . . .	850.	750.
Globules . . . . .	55.6	166.7
Solid matters of the serum . . . . .	94.4	83.3

Here, then, we have two specimens of blood, the serum of both of which is identical in composition, while the solid matters are represented by essentially different numbers, for the sole reason that they are intermixed with a different proportion of globules. There is, however, no real change in all this, for the ratio of water to the serum remains always the same in either case, and thus the proportion, 850 : 94.4 : : 750 : 83.3, is perfectly accurate."

Of course the equation is accurate, because its accuracy necessarily follows from the assumption with which the authors started, viz., that the proportion of 850 to  $x$  in the first case, was the same as that of 750 to  $x$  in the second case. The water of the blood, however, as we have already shown, belongs to the globules as well as to the serum; and its proportion to the solid matters may vary in either the serum, the globules, or both.

The fatty matters, also, which Becquerel and Rodier extract only from the serum, exist also, and even in considerably larger quantity, in the globules. The globules, indeed, though they do not amount, *when dried*, to more than 135 or 140 parts in a thousand, if examined in their natural moist condition, are seen to constitute fully one-half the entire mass of the circulating fluid. An analysis of the blood, then, should properly be a separate analysis of the globules and plasma, similar to that given by Lehmann in his *Physiological Chemistry*, as follows:—

1000 parts of corpuscles contain—		1000 parts of plasma contain—	
Water . . . .	688.00	Water . . . .	902.90
Solid residue . . . .	312.00	Solid residue . . . .	97.10
<hr/>		<hr/>	
Hæmatin (including iron)	16.75	Fibrin . . . .	4.05
Globuline . . . .	282.22	Albumen . . . .	78.84
Fat . . . .	2.31	Fat . . . .	1.72
Extractives . . . .	2.60	Extractives . . . .	3.94
Saline matters . . . .	8.12	Saline matters . . . .	8.55
	<hr/>		<hr/>
	312.00		97.10

A certain proportion of the water of the blood belongs also to the fibrin, and remains in union with this substance when it coagulates. After desiccation, the fibrin, like the globules, has lost a certain quantity of water, which should not be estimated as forming part of the serum, but as belonging, on the contrary, to the fibrin itself.

The authors allude to another fact of considerable importance in this connection, viz., that many of the inorganic ingredients of the blood are not present in a free state, or even simply dissolved in the water of the serum, but are in intimate union with the fibrin and albumen of the plasma and the animal matter of the globules. The albumen, for example, obstinately retains a certain proportion of chloride of sodium; and, notwithstanding the extreme solubility of this salt in water, it cannot be entirely dissolved out until the albumen has been destroyed by incineration. The earthy phosphates, which are insoluble in water and simple alkaline fluids, are dissolved really by the albumen of the blood, which is itself fluid by combination with water. Consequently a longer and more complicated process is necessary to separate the saline substances than if they were in a state of simple watery solution.

Certain other directions are given by the authors for the analysis of the blood, which show with how much care their operations have been carried on, and how many precautions are necessary in order to insure accuracy in such investigations. One great obstacle to success, with which the experimenter has to contend, is the difficulty with which the organic substances are thoroughly dried, and the readiness with which they again become moist by exposure. These substances retain very obstinately a certain proportion of water, even under a tolerably high heat, and absorb it also afterward with extreme rapidity.

“We have ascertained,” say the authors, “from numerous experiments, that to desiccate about 100 grammes (3 oz. 3 drachms), whether of defibrinized blood, of serum, or of clot, it is necessary: 1st. That it be exposed to the continuous action of heat for at least 48 hours; 2d. That the temperature be not less than 80° Centigrade (112° F.); 3d. That the albuminous matter should detach itself spontaneously from the capsule and fall to powder without any perceptible change of colour; 4th. That it be weighed while still warm, and immediately on being turned out of the vessel. This last precaution is as indispensable as the preceding; since these organic matters have, in fact, such

an affinity for water that in the space of a few minutes, and while cooling, they absorb an appreciable quantity, which continues to increase and at length becomes very considerable if the process be carried on in a damp locality."

If the weighing of the dried residue be delayed for twenty-four or forty-eight hours, the increase of weight, owing to the absorption of water, is very considerable, and would seriously vitiate the results of the analysis. The following list, given by the authors, shows how great this variation may become, even when the other customary precautions are observed. The experiments were made upon 100 grammes of serum, taken from different specimens of blood. One portion was dried and immediately weighed; while another was allowed to remain for twenty-four, and another for forty-eight hours, in a warm, dry apartment, without any draught of air, and at a temperature varying from 46° to 50° F. (Page 28.)

Dried residue of serum weighed while still warm.	The same weighed after 24 hours.	Difference, indicating amount of water absorbed.
9.000	9.638	0.638
8.478	8.860	0.382
9.264	9.545	0.381
8.714	9.261	0.457
Dried residue of serum weighed while still warm.	The same weighed after 48 hours.	Difference, indicating amount of water absorbed.
9.384	11.144	1.760
9.017	10.755	1.738
8.526	10.150	1.624
7.970	10.010	2.040
9.350	11.205	1.855

The rapidity with which the absorption of water may take place is indicated by the two following experiments, given also at page 28 :—

- "First, 100 grammes of dried blood gave 19.901 of solid matters weighed while still warm; ten minutes afterward the same mass weighed 20.067.  
 "Second, 100 grammes of dried blood weighed when warm 19.814; and ten minutes afterward 19.864."

The reverse of this happens when the fresh blood or the serum is exposed to the air, and allowed to remain for some hours before its examination is commenced. Its watery portions then diminish by evaporation, and of course the proportion of solid ingredients is apparently increased. The loss of weight by evaporation, under these conditions is appreciable at the end of two hours, and after twenty-four hours becomes quite important. For instance, 13.242 grammes of fresh blood lost, in this way, 0.172 grammes in two hours; and in twenty-four hours 2.45 grammes. The practical deduction from these facts is evident. The blood should either be examined immediately after its withdrawal from the circulation, or, if preserved, it must be kept in well-covered vessels, so constructed as to prevent evaporation.

The above sources of variation in the composition of the blood depend on changes which it suffers after being extracted from the vessels. But there is another still, which depends on an alteration actually taking place during its flow. This remarkable alteration is expressed as follows: *The blood which escapes when a vein is first opened is not precisely identical in composition with that which follows after the lapse of several minutes; the latter contains less solid matter, and consequently more water, than the former.* This fact, which had been already noticed by other experimenters, in the lower animals,

is usually explained by supposing that, as the mass of the blood is diminished by hemorrhage, the partially emptied vessels fill themselves by absorption from the tissues of the body. But they can obtain in this way only a watery, serous fluid. The globules of the blood, which escape from the vein in great numbers, require a considerable time to be replaced by the process of nutrition; and consequently the blood which flows at the end of the operation is necessarily poorer in globules, and in solid ingredients generally, than that which comes first. This ready absorption of fluids from the tissues has even interposed a serious obstacle to the determination of the entire quantity of blood contained in the vascular system. Valentin, for example, proposed that a small amount of blood be withdrawn for this purpose from the veins, and its specific gravity ascertained; and that afterward a definite quantity of water should be injected, and a second venesection finally performed. The difference in specific gravity between the blood drawn before, and that drawn after the watery injection would, it was thought, enable the experimenter to calculate the entire quantity originally existing in the circulation. But it is evident from various experiments, not only that part of the injected water will transude by the kidneys, but that the blood will also have become diluted, previous to its injection, from the cause already referred to.

Becquerel and Rodier show satisfactorily that the absorption of fluid, from the tissues, and consequent dilution of the blood, will take place to an appreciable extent in the human subject, even within the time occupied by a single moderate bleeding. For this purpose they made a number of experiments in which the blood drawn at each time did not exceed 400 grammes—less than one pound avoirdupois. This was received as it flowed from the vein, into four different vessels; and the blood obtained, in this way, during the first, second, third, and fourth quarters of the bleeding, immediately evaporated and examined separately. The results of these experiments were as follows (page 40):—

<i>Experiment 1st.</i>				<i>Experiment 3d.</i>		<i>Experiment 5th.</i>
100 grammes blood, dried en masse.				Serum.		Fibrin.
	Water.	Solids.		Water.	Solids.	Amount of Fibrin.
1st quarter	83.29	16.71		90.58	9.42	0.867
2d "	83.39	16.61		90.59	9.41	0.872
3d "	83.50	16.50		90.62	9.38	0.881
4th "	83.68	16.32		90.63	9.37	0.859
<i>Experiment 2d.</i>				<i>Experiment 4th.</i>		<i>Experiment 6th.</i>
1st quarter	81.01	18.99		91.10	8.90	0.242
2d "	81.37	18.63		91.10	8.90	0.214
3d "	81.54	18.46		91.11	8.89	0.208
4th "	81.80	18.20		91.14	8.86	0.217

"A glance at the above table leads to certain conclusions of considerable importance. If we divide a portion of blood weighing 400 grammes ( $12\frac{1}{2}$  oz.) into four equal parts, and dry it with the utmost care, each part will be found to contain a smaller proportion of solid matter than that which preceded it, in the order of exit from the vein. The degree of impoverishment is not, however, the same at every period of the flow; we repeat, it is progressive; and moreover the fractional divisions employed in the preceding table, are rather intended to give a general idea than an exact measure of the change which takes place.

"The decrease in the solid matters takes place chiefly at the expense of the globules, as well as of the solid matters of the serum; but this last, to a small

extent only, as shown by referring to the third and fourth experiments in the preceding table.

"As regards the fibrin, its relative proportions seem to vary but little during each quarter of the experiments here quoted. The difference noticed in the decimals can only be attributed to slight errors, inseparable from such proceedings."

In order to avoid any practical error which might result from the above facts, the authors invariably use, for purposes of comparison, the first three ounces of blood (100 grammes) which escape during the early part of the bloodletting. The absorption of fluids and dilution of the blood commence, of course, with the first drop which flows from the vein, and increase in amount with the length of time employed in the venesection. But during the first periods the change is comparatively small; and it will be also about the same in amount in all the specimens examined, provided the above precautions be taken, so that it will not interfere with the comparison of different analyses.

After treating of the above practical points in relation to the analysis of the blood, the authors pass on to the consideration of the different ingredients of the circulating fluid—water, albumen, fibrin, salts, &c.—and the modifications in quantity to which they are liable in disease. The water of the blood can be estimated, as the authors remark, only by actual evaporation, and weighing of the solid residue. Simply taking the specific gravity will not give correct information on this point, for the reason that the blood holds in solution many different substances, varying in solubility and specific gravity; and the relative proportion of these substances may vary in two different specimens, when the entire amount of solid ingredients may be the same. Consequently we may either have two specimens of blood of the same specific gravity, and with a different quantity of solid ingredients, or the same amount of solid ingredients and different specific gravities.

The water of the blood may increase or diminish. Its diminution, however, is rare; occurring only in some cases of plethora, simple jaundice, and epidemic cholera. It is increased in nearly all the diseases which impoverish the blood. The globules, on the other hand, are very seldom increased in quantity, but quite frequently diminished. The same thing may be said of the albumen, which suffers a diminution in very many diseases, while its increase is a "rare and exceptional fact." The fibrin, again, is both increased and diminished; increased in inflammatory, and diminished in typhoid and exanthematous diseases. The fatty matters are mostly increased in disease; being found in unusual quantity in acute inflammations, febrile diseases, and jaundice with retention of bile. Among the saline matters, chloride of sodium is undoubtedly the most important, as an ingredient of the blood, since it exists in health in the proportion of 4 to  $4\frac{1}{2}$  parts per thousand. It increases only in cholera, owing to the abstraction of the watery parts of the blood; in which case its increase is only apparent, not real. It diminishes, on the contrary, in consequence of low diet, and in most acute diseases which suspend the appetite and cut off the nutritive supplies. With regard to the phosphate of lime, it is a remarkable fact, that it exists in the smallest proportion in a state of health; while it is almost invariably increased in the majority of diseases. Its increase, however, is not very great, and does not probably exert any very marked influence on the morbid processes.

In the section on "certain foreign matters occasionally found in the blood," the authors speak of the presence in the circulating fluid of the biliary mat-

ters, fat, sugar, urea, pus, &c. As to the *bile*, the question whether it can or does pass into the blood, depends altogether on the sense in which the word is taken. There is no doubt that some of the biliary ingredients, as for example, the colouring matter, do appear in the blood, and even in the substance of the tissues, in cases of jaundice. According to Becquerel and Rodier, the cholesterine, oleates, margarates, and stearates accumulate also in the blood under these circumstances. Still, this cannot be properly considered as biliary absorption. There still remain the glyko-cholates and tauro-cholates of soda and potass, the most characteristic, and consequently most important elements of the bile, which have never been detected in the blood, either as a consequence of the suppression of the bile, or of its excessive secretion and "overflow." Consequently, we cannot properly say that *bile* exists at any time in the circulating fluid, but only some of its ingredients; and those not the most characteristic or important.

With regard to the fatty matters of the blood introduced with the chyle, the authors recognize fully a fact which is too often neglected, viz., that these substances are absorbed in such quantity during digestion, as to produce a turbidity, or milkiness of the serum after its separation from the clot. This appearance, which was supposed for a long time to be an accidental and abnormal phenomenon, is, on the contrary, a regular and constant occurrence in the physiological condition. It may be produced at will in dogs, by feeding them with fat meat, and then bleeding them some hours after the meal. Becquerel and Rodier described this appearance very accurately, as follows (page 68):—

"During the process of digestion, the lactescence of the serum begins, in general, two hours after the ingestion of aliment, and continues for the space of two or three hours. The serum is found to be turbid, opalescent, and semi-opaque; this condition is altogether transitory; it is due to the absorption of the fatty matters of the food, formed into an emulsion by the pancreatic juice, and absorbed as such in the duodenum.

"A microscopic examination discloses, I. A large number of fat globules; II. Molecular granules of an albuminous or fibrino-albuminous nature. In a word, it is the passage of the chyle into the blood, which renders the serum turbid, and continues to do so until these fatty matters, which according to the researches of Christison and Lecanu, are merely the insoluble oleine, stearine, and margarine, become converted into fatty acids; the oleic, stearic, and margaric acids, which entering into combination with the free soda of the blood, thus cause the disappearance of the fat globules."

They state, however, that a lactescent condition of the serum, entirely different in character from the above, may appear in consequence of disease. According to their observations, also, the lactescence is produced in some cases by the presence of matter in a state of fine subdivision, which is not, however, of an oleaginous character.

"This appearance," they say (page 69), "may be due to one or other of two essentially different causes. The first consists in the presence of non-saponified fatty matters in the serum, viz: the oleine, margarine, and stearine; as is most frequently the case. According to the researches of Marcet, Trail, Zanarelli, Christison, Lecanu, Lassaigne, and Bertazzi, the turbidity of the serum in cases of disease is always owing to the presence of non-saponified fatty matters. The proportion of fat existing in the blood is very variable; on one occasion M. Lecanu found 117 grammes in 1000. In a similar quantity Trail found 45, and Bertazzi only 6.

"We have on three occasions met with lactescent serum; once in a case of pneumonia, and twice in Bright's disease. In the former we found under the

microscope, a combination of fat globules and albuminous granules. In the latter we merely detected the granules, nor did a subsequent analysis demonstrate an excess of fatty matter."

*Urea* and *sugar* are spoken of as substances which exist naturally in small quantities, yet in certain parts only of the circulation, and which may accumulate in consequence of disease (Bright's disease and diabetes), so as to become generally diffused, and readily detected by analysis.

The presence of *pus* in the blood, and the morbid consequences arising from it, form an exceedingly interesting and important subject of investigation. It has long been supposed that pus may sometimes find its way into the circulation, and that it may there produce certain general and local disturbances to which, taken collectively, the terms *pyæmia*, or *purulent intoxication*, or *infection*, have been given. These disturbances consist of a febrile condition, with an exceedingly rapid and feeble pulse, emaciation, debility, alteration of the countenance, frequently delirium, together with the appearance, in various external and internal organs, of ill-defined abscesses, known sometimes as purulent deposits, and sometimes as metastatic abscesses. The exact pathology of these processes, however, is not so well established as has been sometimes supposed.

The first question of importance with regard to the matter is the following: *Does the pus actually find its way into the blood?* There is much difficulty in determining this point. It is now very well known that puriform fluids are often found in many parts of the body, which do not really contain pus globules, but which are made up only of disintegrated fibrinous exudation, in which the fibrin has been broken down into a mass of molecular granulations, presenting only a deceptive external resemblance to true pus. Such has been shown to be the character of the so-called "abscesses" occasionally found in the cavities of the heart; and it is very probable, also, that the puriform collections found in inflamed veins are of the same nature. The microscope can alone determine this point. But when the question is of pus mingled with the fluid or coagulated blood, the diagnosis becomes still more difficult, owing to the great resemblance between the pus corpuscles and the normal white globules of the blood. They have the same size, the same spherical shape, and the same granular aspect; and the anatomical points of distinction between them are so delicate, that it requires the most careful and discriminating examination to make out the diagnosis. Probably there is no practical question in microscopic anatomy so delicate as the distinction between these two kinds of corpuscles. Some microscopists have even asserted that they cannot be positively distinguished from each other. There is no doubt, however, that by careful and accurate observation the diagnosis may be made out, provided the pus globules are in pretty large relative quantity in the blood. But if they be few and scattered, the microscopist, it must be confessed, would be very frequently at fault.

The authors believe, nevertheless, that the weight of evidence is in favour of the existence of purulent infection; and in answer to the question, Have the pus globules been found in the blood? they answer, Yes, in all probability.

We would remark, however, that the very terms of this reply show that the authors do not feel quite sure about it. They are aware of the difficulty in microscopic distinction mentioned above, and allude in addition to a still more uncertain test, recommended by M. Donné, which they do not rate, however, at a very high value.

"M. Donné," (page 78) "has suggested a very ingenious process; it consists in placing in the field of the microscope, a drop of blood, in contact with a drop of ammonia, which causes the red and white globules to dissolve almost instantaneously. If, on the contrary, we place a drop of pus in contact with a drop of ammonia, the pus globules, it is true, undergo solution, but the process is much slower, and less complete. Upon this distinction does M. Donné found the diagnosis of pus. The process is ingenious, though uncertain, as affording no positive characteristic, but constituting merely a question of degree: moreover it may happen that some of the blood globules dissolve more slowly in the ammonia than the pus globules, and hence another source of error.

"In conclusion, we may state that the existence of pus globules in the blood is very probable, if not certain; but that positive demonstration of the fact is extremely difficult."

It is plain, therefore, that the evidences of a real purulent infection actually having taken place in any instance, are exceedingly slender. Indeed, we do not hesitate to declare our belief that *the existence of pus globules in the blood as a morbid phenomenon, has never been demonstrated*. It has been frequently assumed, as an easy way of accounting for the phenomena of metastatic abscess; but the assumption is altogether hypothetical, and it is certainly too important a fact to be taken for granted, or to be made the basis, without proof, of any pathological theory.

Such being the case, it would seem quite superfluous to devote much time to the discussion of the question as to the origin of the pus; or, as the authors express it, *Whence are the pus globules found in the blood, derived?* They give, however, the three most prevalent opinions on this point, with the arguments for and against them. First, the pus may be absorbed from a suppurating cavity. Secondly, the pus may be the result of phlebitis occurring in veins which are in contact with the suppurating tissues; and thirdly, the pus may be furnished by the blood itself; that is, the blood is supposed to suppurate in the same manner with the solid tissues. All three of these opinions, it is unnecessary to remark, are equally hypothetical with the phenomena which they are intended to explain. No direct evidence exists in favor of either of them; and one of the surest signs of their uncertainty is that the authors are unable to decide between them, and conclude that all three may be partially true, and that the presence of pus in the blood may consequently be "of a threefold origin—purulent absorption, phlebitis, and spontaneous suppuration."

The pathology of metastatic abscess, however, is not so easily cleared up, even if we admit the existence of purulent absorption. We may, it is true, explain the production of abscesses in the liver and the lungs, by supposing that the absorbed pus globules are transported by the veins to these organs, become arrested in the capillaries, excite inflammation, and produce, consequently, purulent collections, of large size and dangerous character. But metastatic abscesses often occur in regions where their production cannot be accounted for in this way. Abscesses in the shoulder and in the knee-joint have been known to follow fracture of the thigh, and abscesses on the chest, or in the lower extremity, have resulted from injuries about the pelvis. If it were purulent absorption that produced these results, the pus must have first passed through one set of capillaries (*viz.*, the pulmonary) without doing any harm before arriving at the locality in which its presence afterward became so injurious. The whole theory of this singular affection rests on entirely insufficient grounds, and must be regarded, beside, as incapable of explaining all its phenomena.

In the remainder of the second chapter, the authors discuss the modifications of the blood, first in the different classes of disease, and afterward in particular diseases. *Plethora* they state to be characterized simply by an increase in the entire mass of the blood, and not by an exaggeration or diminution of any special ingredient. In the *phlegmasiæ* generally, they find, in confirmation of the results obtained by Andral and Gavarret, that there is invariably an increased proportion of fibrin; and that this is accompanied also by a decrease of the globules, a decrease of the albumen, an increase of the fatty matters, and a decrease of the soda and soluble alkaline salts. In *typhoid* and *typhus fevers*, on the contrary, the fibrin is diminished; together with a tendency to diminution also in the globules and serum. In acute and chronic scurvy, in hemorrhages, in chlorosis and anæmia, in Bright's disease, diabetes, cholera, dropsies, diseases of the brain, hysteria, &c., the changes of the blood are noted, but at too great length to admit of anything more than a general analysis of their results in this connection.

In one or two instances, however, the authors make some important practical distinctions which are not generally sufficiently well understood. In acute scurvy, for example, they find that the proportion of fibrin is not especially diminished, and is even, in some instances, increased; while the globules remain at about their normal standard. In chronic scurvy, on the other hand, the constitution of the blood becomes very different. The fibrin is invariably diminished, as well as the albumen; while the globules are in greater proportion than usual, amounting to 150, or even to 176 per thousand. The authors suggest therefore that bloodletting, so useful in inflammatory disorders which are characterized by an increase of fibrin, might be also of advantage in acute scurvy, where the same phenomenon is present.

They also make a very important distinction between *anæmia* and chlorosis; two diseases which are often, to a great extent, confounded with each other. They differ, however, according to Becquerel and Rodier, in many particulars—in their causes, mode of development, symptoms, progress and duration, and means of cure. The authors enter at length into the discussion of all these particulars, but we shall content ourselves with giving those which relate to the composition of the blood.

"It was long thought," they say (page 54), "and is so still by many, that the modifications of the blood in anæmia and chlorosis were absolutely identical. The results which we have already mentioned, as afforded by the analysis of the blood in these diseases, necessitate the admission of certain differences existing between them in this respect.

"A. In some cases of chlorosis the alteration in the blood may be entirely wanting; in others again it exists, without however being proportionate to the amount of functional disturbance evinced by the circulatory system. Lastly, in a third class of cases there is an agreement in this respect.

"In anæmia, the change in the composition of the blood is constant, and the amount of functional derangement occurring in the circulation invariably proportionate to the degree of alteration which this fluid has undergone.

"B. In *chlorosis*, the only modification of the blood consists in a *decrease of the globules*. This is not always met with, and in some cases it would seem to be independent of the severity of the disease, while in others, that are to all appearance similar, it may be present in very different degrees. We may likewise observe, however, that there is often a direct relationship between the decrease of the globules and the intensity of the disease.

"In *anæmia*, the proportion of globules, while varying greatly, always bears a direct ratio to the exciting cause of the disease, which, as we have before said, may generally be ascertained. The proportion of the globules, moreover,

is likewise in direct ratio to those functional derangements which, in fact, indicate this diminution on the part of the globules, and constitute the disease in question.

"C. In *chlorosis*, the numerical standard of the fibrin is generally somewhat above the physiological mean. Occasionally it may rise to 5 or 6, without the slightest trace of inflammatory action.

"In *anæmia*, the representative number of the fibrin, on the contrary, either falls or remains unchanged. Sometimes, indeed, in severe cases, it may fall as low as 1.5.

"D. In *chlorosis*, the albumen always remains within its physiological limits. In *anæmia*, the proportion of albumen is often natural, but it is not unfrequently diminished, and in severe cases the decrease may be even considerable."

These differences are certainly very striking, and indicate a radical distinction in the pathology of the two diseases, which cannot fail to exert some influence on the effects of treatment. Accordingly, while in *chlorosis* the authors depend on the internal use of iron as the principal and indispensable means of combating the disease, assisted, according to circumstances, by a suitable diet, and by influences of a moral nature—in *anæmia*, on the other hand, their principal reliance is placed upon a removal of the exciting cause of the unnatural condition, such as continued hemorrhagic or muco-purulent discharges, with generous diet, and an invigorating atmosphere; the use of iron being altogether secondary, and in many instances unnecessary.

The chapter on the blood is, as we have said, altogether the most important and comprehensive in the book. The authors treat also of the saliva, bile, pancreatic juice, spermatic fluid, perspiration, &c. But the morbid alterations of these fluids, so far as we know them, are of little consequence. They have not, in fact, been the subject of very successful study. The *urine* opens a much wider and more interesting field. Its modifications are so numerous and are so easily investigated, that it must always attract readily the notice of the pathologist. The pathological chemistry of the solid tissues, on the other hand, and more particularly of the morbid products, such as tubercle and cancer, has been thus far investigated with so little success, that we may be said to know almost nothing with regard to it. It is only, in fact, with respect to two of the fluids of the animal organism, viz., the blood and urine, that investigations of this sort even promise at present to repay the labours of the observer with valuable returns.

On the whole, one cannot avoid feeling, after a careful perusal of the book, that the results of pathological chemistry so far are unsatisfactory. This is not owing to any fault of the authors, or to any deficiency in the number or accuracy of their investigations. On the contrary, the work is filled with numerous and laborious analyses, performed evidently with great care, and made under a great variety of pathological conditions. But they are necessarily confined, in the case of the blood, in great measure to an enumeration of the varying proportions of the more abundant natural ingredients of the circulating fluid; albumen, fibrin, water, globules, fatty matter, and saline substances. These variations are not always very marked in quantity; nor do they seem to be always characteristic of particular forms of disease. The increase or diminution in fibrin, globules, and albumen, even when constant and regular, as in the phlegmasiæ and typhoid diseases, does not give us as yet any great insight into the nature of the morbid processes with which they are connected. The unnatural ingredients of the blood in disease, the *materies morbi*, if any such exist, are present in so small a quantity, or are

of so subtle a nature, that they have, for the most part, eluded the pursuit of chemical analysis. The *physiological* chemistry of the blood is, indeed, still imperfect. One very important class of ingredients, the extractive matters, are as yet almost unknown to us, except by name. No doubt, they have as distinct, and perhaps as important characters as the albumen and the fibrin; but until we have become familiar with them in health, we cannot expect to derive much information from their examination in disease.

So far as the variations in quantity of the ordinary ingredients of the blood are concerned, the work of Becquerel and Rodier is exceedingly complete, and constitutes a large addition to our previous knowledge on this subject;—but it, after all, contains, in reality, nothing more than a mass of highly valuable materials, which may be of use hereafter in constructing the future framework of pathological chemistry.

J. C. D.

## BIBLIOGRAPHICAL NOTICES.

ART. XIV.—*Transactions of State Medical Societies.*

1. *Transactions of the Fifth Annual Meeting of the Kentucky State Medical Society. Held in the City of Frankfort, on the 6th and 7th of February, 1856.* 8vo. pp. 66.
2. *Transactions of the Medical and Chirurgical Faculty of Maryland (Incorporated 1799), at its Annual Session, in June, 1856, in the City of Baltimore.* 8vo. pp. 115.

1. In the *Transactions* of the fifth annual session of the Kentucky State Medical Society, after the minutes of the session, is presented the annual address of the President, Dr. C. H. Spilman.

The subject of this address is "the relations, and reciprocal obligations of medicine and the State." A most important theme; one which has, unfortunately, received but slight consideration on the part of the profession; one scarcely understood by the community at large, and which has occupied but little the attention of our legislative bodies.

The immense importance to the well-being and prosperity of the State, of the existence in its midst of a talented and well instructed medical profession, is capable of the clearest demonstration. It is an acknowledged truth, that the prosperity, wealth, and happiness of a community are always in proportion to the vigour, industry, and general intelligence of those of whom it is composed; conditions that can never be effectually secured in the absence of health. In every community, the larger proportion of the disease and mortality that occur, could, most unquestionably, be prevented by well devised and properly conducted sanitary measures; while the violence and destructive tendency of those maladies which result from occasional causes against which, perhaps, it is impossible, by any amount of prudence or foresight, always to guard, are, to a very great extent, controllable by a well devised and skilfully directed therapeutic treatment.

The first, therefore, and the highest concern of a State, is, as Dr. S. very correctly insists, not only to know the number and condition of the people, "but to throw around it such safeguards as shall insure its greatest possible immunity from disease and death;" and this, it is clear, can only be done by the promotion of such measures as shall insure to the community the services of a well educated and competent body of medical practitioners. It is such a body, alone, that is competent to investigate and detect the sources of disease, and point out the proper means by which each citizen may be shielded from "the multifarious but unsuspected noxious influences by which he is surrounded, and from which his health and life are in constant jeopardy." It is such a body, only, that is able, when disease has actually occurred, to determine with certainty its seat and character, and apply properly the remedies adapted to conduct it to a speedy and favourable termination.

Dr. Spilman very truly remarks, that it is a fact, established by incontestible statistics, that among every people by whom medical science and skill has received no encouragement, and where ignorance and charlatanism predominate, the population rapidly diminishes, and, before the ravages of disease, and its enervating influence, industry, comfort, wealth, nay, even manly independence of character, speedily give way. "Even in countries favoured with scientific medicine, the ratio of mortality, and freedom from disease, is incomparably less in the localities enjoying to the fullest extent the counsel and advice, the skill and attention of an enlightened medical profession"—where the sanitary efforts of the legislative and executive authorities are directed and sustained by its advice and co-operation—than in the localities which give encourage-

ment to ignorance and empiricism, and either hear not or heed not, the warning voice raised in defence of the health and the lives of the people by legitimate medicine.

There is, in fact, no vocation, "that has done so much to elevate human character, to happyfy the human race, and to avert and remedy the numberless ills incident to mortality, as that of medicine." There is no "class of men so self-sacrificing, so reckless of self-interest, so ever ready to yield up ease and comfort and emolument for the good of the public, as physicians." No class in society "live more for the public and less for themselves."

The moment that pestilence breaks forth amid a community, carrying terror even to the stoutest heart, and death and mourning into every family, the physician is called upon to face the destroyer, and by the exertion of his skill to stay its progress. All others are permitted to fly from the infected locality; but he is expected to maintain his post, to risk his own life, and, day and night, amid scenes of suffering, the groans of the dying, and the desertion of "relative, of lover, and of friend," to minister to the wants, to soothe the anguish, and to quell the terrors of "the plague stricken, and plague endangered population." And this, too, without the anticipation of an adequate remuneration for his services, and amid scenes from which all others would shrink with terror and dismay.

The poor, also, in the hour of sickness and of suffering, are made his especial care, and upon them he is expected to bestow his time, his skill, his utmost care, without fee or reward.

We would not, certainly, that the physician should fail in the least degree in his devotedness to the important mission he has assumed, in times when "pestilence walketh in darkness;" nor abate one iota of his charitable ministrations to the poor and needy. Nor would we claim for him any pecuniary recompense for the faithful performance of the duties and obligations of his high vocation. All that we would ask for him from the State is, that in consideration of the important services he promptly renders to her citizens in the hour, and under the circumstances, when and where they are most needed, she shall extend to legitimate medicine that encouragement in the prosecution of its benevolent mission, that protection from encroachments upon its rights and interest, to which we believe it is justly entitled.

Physicians have been so long accustomed to risk their lives and devote their time and their talents for the benefit of their fellow-citizens gratuitously, and in the absence of all encouragement or protection from the State, "that it is now expected of them as a matter of course, and they become the objects of bitter reproach if they hesitate. There is no more reason, however, why the physician should render service to an indigent invalid, without compensation, than there is why his neighbour should draw upon his private funds to pay his fee. The claims of charity are alike binding upon the entire community, and the demands upon its members for relief, are *pro rata*, as God has given them ability. The assumption, therefore, of so large a share of the burden by the medical profession, finds its vindication simply in the liberalizing influence the practice exerts upon the mind, from an intimate acquaintance and constant familiarity with objects of pity and distress, which keeps ever alive in the bosom a glowing sympathy, and an enthusiastic desire to afford relief. Hence, it is a free-will offering, from which the physician does not claim exemption, or ask to be excused, because it carries with it a rich remuneration, in the consciousness it affords him of being the honoured medium for conveying to society such an inestimable boon. But, survey the whole framework of society, and where will you find the members of any other profession or avocation, who are satisfied, for the good of the public, to work for nothing and support themselves? Does not the farmer, in disposing of his produce, the mechanic, of his wares, the tradesman, of his commodities, the gentleman of the bar, of his advice, the literary professor, of his instruction; do not the operatives in these various departments of business, in disposing of the products of their labours, demand an equivalent? and in default, do they not decline the service? and does not public opinion justify them in so doing? But let the professor of the healing art withhold his services, on the plea that the applicant is unable

to remunerate him, and forthwith he is denounced as hard-hearted and exacting, and the execrations of the public are heaped upon him without measure."

"Voluntarily consecrated to a life of sacrifice," remarks Dr. S., "the physician sees no grief that does not meet the deepest pity; no misery that does not excite the attempt to relieve it. With no desire of applause, or expectation of reward; often of sensibilities keen even to agony, tremblingly alive in every fibre of the soul to pain and wretchedness, yet with moral heroism to steel his nerves to a familiarity with the most revolting scenes of suffering, he disdains, alike, all aspirations to personal ease, the attainment of creature comfort, and pecuniary reward, occupied solely with the animating hope and confident assurance of being the honoured instrument 'of blessing him who is ready to perish,' and contributing in some degree to the common sum of human happiness. So quiet, however, so noiseless, so unostentatious are the lives and labours of those who exercise the medical art, that, to the busy world around, absorbed in pursuits, and occupied in schemes of gain and pleasure, the amount of real, substantial good accruing to society therefrom, is wholly inconceivable."

"Now if it be true that the science of medicine, through the labours of its professors, is rapidly advancing in the means of cure; if it be true that physicians are labouring, not for themselves, but for the public, who share alike the proceeds of their toil; if, in the accomplishment of their mission, they relieve the State of a tax by the voluntary assumption of gratuitous services, which would otherwise prove onerous to its citizens; if the medical profession, as a class, by the moral and intellectual elevation of society—by the prevention and cure of disease, and by the advancement of the honour and wealth of the State, contribute largely to the common welfare—does it not merit the fostering care of the State, and appeal, by every consideration of interest and duty, for such encouragement and protection as shall animate its members, energize its philanthropic efforts, and secure all the benefits derivable from a full development of its susceptibilities?"

The entire address of Dr. S. is replete with truth and force. It presents in bold outline an admirable exposition of the obligations which medicine owes to the State, and the faithful manner in which these obligations have been fulfilled by its professors. Equally happy is the author in his portraiture of the reciprocal duties and obligations the State owes to medicine, from which she has received, and is daily receiving, far greater benefits than she can ever repay even were she to do far more than the profession demands at her hands in the way of encouragement and protection.

The address of Dr. S. is followed by the report of a select committee, appointed at the session of 1855, "to examine and report as to the best means of expediting the collection of medical bills, and improving the finances of the profession."

The subject is certainly one of no trifling moment to the majority of physicians throughout the country. It is but reasonable that the medical practitioner should expect an adequate remuneration for his services, and that this remuneration should be promptly and cheerfully rendered to him. Yet, how few are there, of the thousands devoted to the practice of the profession, and who fulfil faithfully and skilfully their duties towards those who place themselves under their care, who receive a compensation for their services, in any degree commensurate with the true value of those services to the patient, or that can be considered an adequate repayment for the toil and anxiety—the devotion of time and of talents—the risk of health, and of life itself, demanded on the part of the physician in the performance of his mission at the bedside of the sick. How very few medical men are there, who after devoting the best years of their lives to the active duties of the profession, have been able to save from the income thence derived, a fund sufficient to permit them, when the approaching infirmities of age intimate but too strongly the necessity of retirement and repose, to relinquish practice, and pass the remnant of their days in ease and comfort.

We perused with attention the report before us, in hopes that the labours of

the committee may have, perchance, resulted in the discovery of some practicable and efficient plan to remedy this evil—to enable the medical practitioner to acquire from his profession a sufficient income for the support of himself and family, and to lay up a fund to meet “the evil days that happen alike to all.” We have, however, been entirely disappointed.

The report of the committee on improvements in surgery is occupied exclusively with a medico-legal examination of a case of death from a gunshot wound.

The examination, in all its bearings, is confessedly a highly interesting one, as illustrative of the question whether the wound resulting in the death of the patient, was produced by the accidental discharge of a gun in the hands of the deceased, or was inflicted by another; but in what sense it has any bearing upon any possible improvement in surgery, we confess that we have failed to discover. The case, we admit, would have been a surgical one, had not the wound been almost immediately fatal, the patient being dead before he came under the notice of a practitioner. It may explain the manner in which certain secondary accidents may result from wounds caused by firearms, but it can scarcely be considered as adding any important improvement to the theory or practice of surgery.

In a medico-legal point of view, the case is a most important one, and we regret that its great length prevents us from copying it entire, while an abstract of it would not present the important points elucidative of the medico-legal question involved in it.

2. The *Transactions* of the Medical and Chirurgical Faculty of Maryland, open with the annual oration of Dr. L. H. Steiner. The theme of the orator is, the nature and value of the contributions of chemistry to medicine.

A very able general review is presented of the services rendered by chemistry to materia medica and pharmacy, physiology, pathology, and therapeutics.

The orator, while he acknowledges frankly the obligations which medicine, as a science and an art, owes to chemistry, does not rank himself with those physiologists and pathologists who, in these modern days, can see nothing more in the various actions and processes of the living organism, during health and disease, than the mere operations and results of physical causes. He is not prepared to explain the entire phenomena of life and their deviations from the normal condition by chemical actions and reactions.

“I would,” he remarks, “designate as the point of greatest danger to the professional thinking of the present day, a want of reference to the existence of a vital principle permeating every nerve fibre, every muscular fibril, every microscopic cell in the living organism, whether of plant or animal, and exerting its mysterious sustaining and controlling power in all these, in a way that is beyond the ken of human being, and which was intended to be kept from his knowledge for purposes that are known to the Divine Author, and to Him alone. Here is the great error, the hidden rock on which many a beautiful theory has been shattered into a thousand pieces.”

“The misuse of chemistry,” he observes, further on, “in the profession appears, however, in more cases than we have time to glance at here. Its employers have always met with failures in their practical applications of the theories which would grow out of such misuse. They have been forced to see, that as the eras of *Solidism* and *Fluidism* had lived their day, and been finally forced to die from marasmus, so would all their theories fail to inaugurate an era that should exist any longer than the time required to show their fallacies, and to make way for the appearance of something more durable because more true. The true theory of animal action consists in adopting none of the defunct theories of the past absolutely, but in admitting the presence of a vital power which holds the physical, chemical, and electric actions under a proper rule, causing them all to work unitedly for the good and well-being of the organism. The stomach is not a laboratory, but chemical operations are carried on in it with a peculiar kind of restraint attached to them, which invests them with a special character. And the same holds good with reference to all other chemical actions in the organism.”

In physiology, chemistry can be viewed only as one of the agents employed by the vital power, in whatever this may consist, to accomplish certain of the functions of life, and constantly under its control. So in pathology, it is not the changed condition of the chemical status of the solids or fluids which constitutes disease; the latter must be looked for in a disturbed—abnormal—condition of the vitality, of some organ or organs of the body, giving rise to disturbance of function—a mal-performance of office—of all the agents subject to the control of the vitality; in the disturbance of which latter the disease originally and actually consists. So in therapeutics, it is not by the skilful employment of remedies in the shape of chemical agents, that we can hope to restore to the fluids and solids their normal chemical condition and action, but by removing the disturbance of vitality, by which the abnormal chemical state and action of the fluids has been produced and is kept up.

In the report which follows—that on memoirs—short biographical notices are given, of Dr. Ashton Alexander, who died of pneumonia, in February, 1855, in the eighty-third year of his age, and of Dr. Samuel K. Jennings, who died of disease of the brain, on the 19th of October, 1854, in the eighty-fourth year of his age.

The next report is on medical chemistry. The chief of the recent discoveries in this branch of science are briefly noticed under separate heads. Under that of physiology, the recent investigations into the glucogenic function of the liver, and the results of Robin's study and analysis of hæmatoidin, are referred to. Under the head of pathology, the report refers to the existence of crystals of creatin in the urine, and the nature of the blue-black appearance occasionally met with in the latter.

In reference to this abnormal appearance of the urine, the report informs us that—

"An interesting case of blue, or more properly blue-black, urine has recently come under the observation of Dr. Frick of Baltimore. The history of the case, as furnished by Dr. F., is the following: The specimen which I here submit to the inspection of the society, was passed by a woman æt. 60, labouring under Bright's disease. The sp. gr. of the urine, which when passed was faintly acid, was 1.009, and contained tube casts and cylinders, with hypertrophied epithelium and oil globules. She had noticed this change in her urine, which she said, for some days past had, on standing a short time, become black as ink. In the case of the present specimen, decomposition had occurred, and the precipitate formed, to the depth of one-third of a 10 oz. bottle filled with the urine, in an hour's time. Dr. F., thinking that it would be easy to procure other specimens for analysis, did not use this for the purpose, and the patient having been put on the use of *infus. juniperi* at the time, the change in colour never returned.

"The kindness of Prof. Miltenberger affords me an opportunity of exhibiting another specimen, obtained this morning, from a patient of the doctor, with the following history: an elderly lady, æt. 56, was attacked on the first inst., with severe facial erysipelas, the inflammation extending rapidly into the mouth and fauces. On June 2d, she was ordered *tinct. ferri mur.* On the next morning she stated that she had been alarmed during the night by the peculiar character of her urine, which was of a dense black colour. Upon inspection, this proved true—the quantity present in the vessel being about a pint. It was supposed, at first, that the iron might possibly account for the colour, though it had been given for about fifteen hours only. But, although the iron was continued for several days, the secretion did not, afterwards, during the attack, depart from the normal character and colour. No iron was found in this urine, and its colouring matter, under the microscope, presented an appearance similar to the urates of ammonia and soda.

"This matter has occasionally been observed to be developed spontaneously in the urine of Bright's disease, and in cholera patients it has been precipitated by heat or nitric acid. The colour has been in these latter cases better marked when the nitric acid was impure from the presence of hyponitric acid. Virchow has seen it in the urine of a boy suffering from incontinence of urine, and in a case of poisoning by copper, complicated with granular renal atrophy.

The nature of this colouring matter as of other urinary pigments is still a *questio verata*; by some it has been supposed to be prussiate of iron formed by the liberation of cyanogen in the decomposition of urea and combination with iron abstracted from the blood; by others, to be a modification of bile pigment, and Heller supposes it to be due to a peculiar substance called uroglaucin. Dr. Frick attributes it, in his case, to the liberation of Heller's uroglaucin by decomposition and its probable combination with albumen. Robin and Verdiel, in their *Physiological Chemistry*, express the opinion that the colour is due to decomposed urates. Neubauer, at p. 46 of his recent instructive *Manual of Urinary Analysis*, gives an account of an analysis of such urine, without expressing any opinion as to the nature of the peculiar colouring matter."

Under the head of materia medica are presented Kuchenmeister's formula for the administration of phosphate of lime, and a notice of the use of iodide of starch. Under the head of hygiene are noticed the results of Dr. Hammond's experiments of the action upon the economy of certain articles of diet; the manner of purifying water containing carbonate of lime; the deleterious effects of the inhalation of phosphorus in those engaged in the fabrication of lucifer matches; on the diseases produced in those employed in the manufacture of articles from caoutchouc, from the inhalation of the vapours of sulphuret of carbon; on the cause of the symptoms of poisoning in persons occupying recently painted apartments; which M. Marchal attributes to the turpentine of the paint, and not to the lead of which the paint is composed; and, finally, on the poisonous properties of the brine used in salting meats and fish. Under the head of toxicology, is a notice of Casper's process for detecting the presence of colchicum in the gastric fluid, and, also, of the remarks of Dr. Hall on the strychnoscopic properties of the muscles of the living frog.

To the foregoing reports succeed a synopsis of certain papers published by the medical junto of Montevideo, and by it transmitted to the medical and chirurgical faculty of Maryland.

The most interesting of these papers are those relating to the etiology, prevention, and treatment of yellow fever. In a short notice of the disease as it occurs in Rio Janeiro, by Dr. Bentos de Carvalhõ e Souza, of the Brazilian Navy, we are presented with the following as the conclusions based on his personal convictions:—

- "1. Yellow fever always arises from local causes.
- "2. It possesses no germ of contagion nor of reproduction.
- "3. It cannot, therefore, be transmissible.
- "4. It is always identical in the various climates in which it springs up, whether it be sporadic, endemic, or epidemic.
- "5. The only sanitary measures to be employed against the disease are strictly hygienic.
- "6. A sanitary system, opposed to the introduction of an imaginary virus, should be abandoned as useless, and frequently pernicious."

Dr. Souza lays particular stress upon marshes surrounding Rio Janeiro, and the sewers and sinks in the city itself, as the causes originating yellow fever; and while he repudiates the idea of the importation of the disease, he equally denies its contagiousness; adducing in evidence the facts known to himself, that, in the marine hospital, yellow fever patients of the epidemic of 1849, were distributed among other patients, without the disease extending from the former to the latter. That the physicians and dressers of the hospital having charge of the patients escaped unharmed—and, finally, that Dr. Peixoto wore, upon several occasions, the very garments of individuals who had perished with the yellow fever. He, therefore, with Jolivet and others, believes it is proper that persons sick with the fever should be removed from on board an infected vessel arriving in port, and placed in hospitals, where may be afforded them, without apprehension, all the succors of humanity.

The treatment recommended by Dr. S. is that of the hospital of Rio Janeiro; it consists, for the *first period*, in hot sudorific drinks, sinapised baths, castor oil, leeches to the anus and mastoid processes, but particularly wet cups, and the free use of the lancet. In this stage, he regards bloodletting as highly

beneficial. Afterwards, sulphuric lemonade, with or without quinine, may be employed, nitrated potions in high doses, and tartar emetic largely diluted. To combat vomiting, cups to the epigastrium, and astringent drinks, with camphor, opium, or cherry laurel, or green coco-water (of Bahia) are found frequently to produce very happy results. In the latter stages quinine forms the basis of treatment.

Opinions directly opposite to those of Dr. Souza, so far, at least, as regards the etiology, character, and prevention of yellow fever, are maintained in a communication from Drs. Angel Rossi and F. A. Vidal. These gentlemen present an array of evidence, which, if we could have entire confidence in its accuracy, and its deduction from a careful comparison of all the facts in each particular instance, bearing directly upon the question at issue, would afford, certainly, strong grounds for the following general conclusions, as given by them:—

“1st. That yellow fever never originates from local causes.

“2d. That it does possess a germ of contagion and of reproduction.

“3d. That it is consequently transmissible.

“4th. That it is always identical in every climate.

“5th. The same sanitary measures should be adopted which are commonly opposed to pestilential disease.

“6th. A sanitary system, having for its object the prevention of transmission of an infectious disease, ought to be regarded as the most sacred of duties, whilst it can never be or become dangerous.”

The report on pathology and practice of medicine is confined to the consideration of malarious fevers, especially the intermittent forms, as observed by the committee at the Baltimore city and county almshouse.

The most interesting portion of this very able report, is that which presents the experience derived from the practice in the wards of the institution just referred to, of the comparative value of various antiperiodics in the treatment of intermittent fever. We can give here only the general result as presented by the committee.

“Were we called upon,” they remark, “to state the relative value of the remedies treated of in the preceding report, for the treatment of malarious fevers, we would arrange them in the following order:—

“1st, quinine and cinchonine. One little if at all inferior to the other, in equal doses.

“2d, quinoidine, } Both perfectly efficient, but the former more prompt than

“3d, quinidine, } the latter in the same doses.

“4th, bebeerine. Not at all reliable. Slightly antiperiodic.

“The cost of quinine is	.	.	.	\$2 80 per ounce.
“ “ cinchonine is	.	.	.	1 00 “
“ “ quinoidine is	.	.	.	87½ “
“ “ quinidine is	.	.	.	2 50 “
“ “ bebeerine is	.	.	.	2 00 “

“We have thus four good and efficient antiperiodics in the place of one but a few years since. The cost of two is already less than one-half that of quinine, and the division of the work of curing malarious fevers among four agents, instead of its concentration in one, must diminish the demand for any particular remedy, and hence will further reduce the price of all. They will thus be placed within the reach of the poorest classes, from whom they have been almost debarred, and all apprehensions of a failure of supplies will be most effectually lulled.”

In the report on the medical topography of Somerset County, it is stated that for “the past two years, with the exception of a few particular and small localities, there has been a remarkable exemption from disease of all sorts; possibly no section could have been more exempt than Somerset. Even our annual endemic scourge—remittent fever—has ceased in a great measure to visit us, or, at least, comes in such slight form as scarcely to be dreaded.”

“I am much disposed,” says the author of the report, Dr. Handy, “to question the influence of marsh miasm as a cause of dysentery, and to consider

them the same as those of diarrhoea. By many I know, it is thus attributed, but in this country of marsh effluvium, diseases of a strictly malarious origin and dysentery rarely occur together, or seem to depend on the same cause. Dysentery is usually met with in the months of June and July, and only sometimes in August. Now, although remittent fever frequently occurs here in June and July, it is not common for it to do so extensively; frequently not until the latter part of August or 1st of September; and from this time, throughout the autumnal months, it is met with in conjunction with remittent fever, but this has always appeared to me to be more the effect of vitiated biliary and other secretions thrown into and irritating the mucous coat of the intestinal canal, than of any direct malarial impression; an acquaintance of upwards of thirty years with remittent fever and dysentery, has not thrown a half dozen cases of the kind under my observation."

"Concurrently with diarrhoea and dysentery," says Dr. H., "comes cholera infantum; a disease much less frequent now than in former years, from causes which I am unable to assign. It does not appear to me to have any connection with a malarious origin. It usually commences in the latter end of May if it is hot, or about the 1st of June; it rarely occurs *de novo*, after the middle of August. I have known it in infants two months old, but have never, to the best of my recollection, seen it after the second summer. There is nothing particular in it as it prevails here, except its unusual mildness of form. It is, undoubtedly, the product of excessive heat, more especially when combined with the relaxing effect of moisture, and excited by the process of dentition and imprudence in feeding. As these causes are with difficulty avoided, we always have cases of the disease, though much fewer now than formerly."

A concise but valuable report of the medical topography of Kent County, is presented by Dr. P. Worth. The same statement that we receive from various sources of the decline of malarious fevers in localities where they formerly prevailed endemically to a very large extent, is given by Dr. Worth, in reference to Kent County, Maryland.

"Of late years," he remarks, "whatever be the cause, the fact is beyond dispute, our malarious fevers have been on the decline, and for the last three years, the autumnal months have been almost as salubrious as June, which Dr. Rush styled 'the resting month of febrile diseases.' For this declension I feel unable to offer a satisfactory reason, but venture to suggest, as *probable*, the improved culture now generally practised, the more extended drainage of low grounds, and the almost universal spreading of lime over the surface."

With this report the volume closes.

D. F. C.

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ART. XV.—*Reports of American Institutions for the Insane.*

1. *Of the New Hampshire Asylum for the Insane, for the year 1855.*
2. *Of the McLean Asylum, for the year 1855.*
3. *Of the Butler Hospital for the Insane, for the year 1855.*
4. *Of the New York State Lunatic Asylum, for the year 1855.*
5. *Of the New Jersey State Lunatic Asylum, for the year 1855.*
6. *Of the Pennsylvania Hospital for the Insane, for the year 1855.*
7. *Of the Pennsylvania State Lunatic Hospital, for the year 1855.*
8. *Of the Indiana Hospital for the Insane, for the year 1855.*

BEFORE we proceed to a review of the several publications, the titles of which are given above, it is proposed to introduce some subjects which have been suggested in the course of our examination of the reports of institutions for the insane, which have come into our hands in the course of the past year.

If we take a retrospective glance over a period of less than half a century, we find that, in 1815, throughout the whole domain of the United States, the

only separate independent public institution for the insane, was that at Williamsburg, Virginia. That establishment had undergone serious vicissitudes. It was opened during our colonial dependence upon Great Britain, and, in the course of the Revolution, its operations were suspended, and the buildings converted into military barracks.

In the latter half of the decennium ending on the 31st of December, 1820, two new institutions were opened. These were, the Asylum at Frankford, now Philadelphia, in 1817; and the McLean Asylum, in what is now Somerville, Massachusetts, in 1818.

In the course of the decennium terminating with the close of 1830, five establishments for the insane sprang into existence. The Bloomingdale Asylum went into operation in 1821; the Retreat, at Hartford, Connecticut, and the Asylum at Lexington, Kentucky, in 1824; and the Asylums at Staunton, Virginia, and Columbia, South Carolina, in 1828.

Earliest in the next succeeding period of ten years was the Massachusetts State Hospital, at Worcester, which was opened in 1833; the Vermont State Asylum, at Brattleboro', followed in 1836; the Ohio State Asylum, at Columbus, in 1838; the pauper institutions for the cities of Boston and New York, in 1839; and the Maine State Asylum, at Augusta, in 1840. It was during this period that the greatest impulse was given to the scheme for meliorating the condition of the insane in these United States. In the production of this impulse, no person exerted greater influence than the late Dr. Samuel B. Woodward, who was at that time Superintendent of the hospital at Worcester. The zeal and hopefulness with which he ever pursued his occupation; the moral glow of sunlight which he disseminated all around him, over a sphere thitherto almost universally regarded, in the popular mind, as shrouded with clouds and involved in darkness; and the elaborate reports which, emanating from his pen, were scattered broadly throughout the country, all contributed to awaken an interest in the subject which had never been previously manifested.

The decade from 1840 to 1850 exhibited the effect of this increased interest. The Pennsylvania Hospital for the Insane was opened in 1841. In 1841 or 1842, a separate building was erected for the pauper insane of King's County, New York. The New Hampshire State Asylum, at Concord, and the Mt. Hope Institution, at Baltimore, commenced operations in 1842; the Asylum at Utica, New York, in 1843; the Butler Hospital, at Providence, R. I., in 1847; and the State Asylums at Trenton, N. J., Indianapolis, Ind., and Jackson, Louisiana, in 1848. About the middle of this decade, the Maryland Hospital, at Baltimore, theretofore devoted to the treatment of general diseases, was converted into an institution exclusively for the insane. No positive information upon the subject is now accessible to us; but it is our impression, relying upon memory, that the original Asylum, at Nashville, Tennessee, and the Asylum at Milledgeville, Georgia, were opened in the early part of this decennium.

Since 1850, several institutions have been brought into existence. The State Hospitals, at Harrisburg, Pa., Fulton, Missouri, and Jacksonville, Illinois, were organized and first received patients in 1851. The new building of the Tennessee Hospital was so far completed as to be occupied in 1852. The State Asylum at Stockton, California, and the Asylum for the County of Hamilton, Ohio, were opened in 1853; the State Institutions at Taunton, Mass., and Hopkinsville, Kentucky, in 1854; the United States Government Hospital, near Washington; the State Asylum at Jackson, Mississippi, and those at Newburg and Dayton, Ohio, in 1855; and the State Asylum at Raleigh, N. C., in 1856. The new building for the pauper insane of King's County, N. Y., was first occupied by patients in 1855.

Such is the chronological record of the establishment of our institutions; such the rapidity of increase in the number of them. Let us turn to ascertain the increase of the number of persons to whom they have administered the benefits for the supply of which they were founded.

Our information upon this subject is derived from an "Address, delivered at the laying of the corner-stone of the Insane Hospital at Northampton, Mass., July 4th, 1856, by Edmund Jarvis, M. D." Dr. Jarvis examined the reports of

all our institutions, "excepting those of Georgia, from the beginning; Louisiana, for 1854 and 1855, and California, for 1855. It should be stated, also," continues Dr. J., "that the pauper hospital of New York did not publish the number of patients received during the years 1834 to 1846 inclusive."

"Disregarding the omission at New York, and assuming that the other two hospitals, not including that of Georgia, admitted as many patients in those years of which no report is received, as they did in their last previously reported years, the following will show the progress of the demand for hospital accommodations, within the last twenty-six years, in the United States:—

Years.	Patients admitted.	Years.	Patients admitted.	Years.	Patients admitted.	Years.	Patients admitted.
1830	322	1837	628	1844	1725	1850	3144
1831	379	1838	697	1845	2004	1851	3491
1832	481	1839	949	1846	2107	1852	3736
1833	639	1840	999	1847	2723	1853	4151
1834	456	1841	1145	1848	3070	1854	4243
1835	461	1842	1105	1849	3082	1855	4383 <sup>1</sup>
1836	545	1843	1634				

Thus it appears that, from 1830 to 1855, the number of patients received at our hospitals for the insane increased *more than thirteen hundred per cent.*

The proposition of the comparative liability of the sexes to mental alienation has never received a positive solution. Esquirol's assertion, based upon researches more extensive than any which had preceded them, that more females than males are insane in the western countries of continental Europe, has generally been received as the truth. Until within a short period, all our knowledge upon the subject went to show that, in this country, more men than women are insane. Even so late as 1850, Dr. Jarvis collected the numbers of the patients who had been admitted into twenty-one American institutions for the insane, and found the result to be 13,473 men, and 11,100 women. This is equal to 121 men to 100 women.

Of late, however, a new aspect has been given to the subject. By the very accurate census of the insane of Massachusetts, taken by the Legislative Commission, in 1854, it was shown that the numbers of the two sexes thus afflicted, in that State, were, males 1254, females 1378. This is but a small fraction less than 110 females to 100 males.

It is evident that, for reasons which may be suggested in the mind of the reader, in the earlier years of the insane hospital scheme in this country, the number of patients brought to the hospitals, compared with the whole number of the insane, was much larger among males than among females. A change in this respect has gradually taken place. This change may be illustrated by the statistical history of one institution.

At the Hartford Retreat, the number of patients admitted prior to the 31st of March, 1844, was 693 males and 634 females, which is 109 of the former to 100 of the latter. From March 31, 1844, to March 31, 1856, the numbers admitted were 712 males and 922 females, or 100 of the former to 129 of the latter.

While reviewing the last received reports from our institutions, we compiled the following table. It will throw some light upon the subject. The first division shows the number of each sex admitted in course of the year; the second division, the number remaining in hospital at the end of the year. Several reports do not distinguish the numbers of the sexes, and, in California, the proportion of men in the population so vastly predominates over that of women, that it would be manifestly improper to include the statistics of the Asylum in that State.

<sup>1</sup> When patients were removed from one hospital to another, as from Worcester to Taunton, in 1854, their admission into the latter is not included in this table.

	ADMITTED.			REMAINING.		
	Men.	Women.	Total.	Men.	Women.	Total.
Maine State Hospital . . . . .	66	62	128	86	69	155
New Hampshire State Hospital . . . . .	45	40	85	72	83	155
Vermont State Hospital . . . . .	78	86	164	188	201	389
Mass. State Hospital, Worcester . . . . .	86	113	199	168	158	326
Mass. State Hospital, Taunton . . . . .	83	84	167	126	136	262
McLean Asylum . . . . .	59	64	123	88	104	192
Butler Hospital, R. I. . . . .	22	34	56	61	76	137
Retreat, Hartford, Conn. . . . .	70	87	157	98	99	197
Bloomington Asylum, N. Y. . . . .	59	48	107	56	71	127
New York City Asylum . . . . .	163	208	371	238	335	573
New York State Asylum, Utica . . . . .	169	106	275	230	225	455
King's County Asylum, N. Y. . . . .	65	80	145	65	119	184
New Jersey State Hospital . . . . .	58	81	139	107	126	233
Pennsylvania Hospital for Insane . . . . .	83	93	176	120	110	230
Mt. Hope Institution, Baltimore . . . . .	49	46	95	46	76	122
Maryland Hospital, Baltimore . . . . .	42	28	70	59	62	121
Western Virginia Hospital (2 years) . . . . .	90	63	153	226	162	388
Ohio State Hospital, Columbus . . . . .	95	79	174	109	107	216
Hamilton County Asylum, Ohio . . . . .	65	59	124	75	86	161
Indiana State Hospital . . . . .	79	92	171	88	108	196
Eastern Kentucky Asylum . . . . .	69	33	102	104	82	186
Aggregate . . . . .	1595	1586	3181	2410	2595	5005

Thus, while the numbers of the two sexes admitted in the course of the year were almost precisely equal, being a small fraction in favour of the men, the numbers remaining at the end of the year show a predominance of more than seven per cent. on the part of the women.

At the *fourteen* hospitals in the Eastern and the Middle States, the admissions were, of men, 1106; women, 1186; and the numbers at the end of the year, men, 1703, and women, 1912.

From all these data, it appears probable that the time is not far distant at which it will be demonstrated that, in this country, the number of insane females is greater than that of insane males.

We now proceed to an examination of the reports.

1. In the course of the year 1855, the *New Hampshire Asylum for the Insane* was improved by the completion of a new building for the most violent patients. According to Dr. Tyler, this class of inmates now has "as good accommodations as can be desired, and are in circumstances as comfortable and as favourable to recovery as they can possibly be placed." A new wing was commenced in July. When this shall have been completed, the asylum will have beds for 225 patients. Apparatus for heating by steam has been introduced.

	Men.	Women.	Total.
Patients in the Asylum, May 31, 1855 . . . . .	72	83	155
Admitted in course of the year . . . . .	57	38	95
Whole number . . . . .	129	121	250
Discharged, including deaths . . . . .	52	44	96
Remaining, May 31, 1856 . . . . .	77	77	154
Of those discharged, there were cured . . . . .	37	29	66
Died . . . . .	6	4	10

Some applications for admission were rejected for the want of room.  
The report is almost wholly devoted to subjects of local interest.

2. After a service of nineteen years as Superintendent of the *McLean Asylum for the Insane*, Dr. Bell has resigned his office, and his valedictory report

now comes before us for review. The distinguished success which has marked his career is well known to our readers. His reputation as a *psychiatrist* is limited only by the extremes of those countries in which psychiatry has become a special science. During the last nine years his annual reports have been very brief, furnishing but little matter for our columns. This is doubtless attributable in part to his well-known opinion of the worthlessness of the statistics of insanity; in part to his conscientious objections to the publication of the delusions, the whims, caprices and eccentricities of the insane; and in part to a belief that the medical Journals, rather than hospital reports, are the appropriate organs through which essays upon the etiology, the pathology, and the therapeutics of insanity should be placed before the members of the medical profession. In this report he embodies the results of his experience in regard to several important subjects; and these, after giving the few *figures* which we derive chiefly from his *words*, we shall proceed to quote.

	Men.	Women.	Total.
Patients in the Asylum, Dec. 31, 1854 . . . . .	97	98	195
Admitted in course of the year . . . . .	59	64	123
Whole number . . . . .	156	162	318
Discharged, including deaths . . . . .	68	58	126
Remaining, Dec. 31, 1855 . . . . .	88	104	192
Of those discharged, there were cured . . . . .	27	29	56
Died . . . . .	16	8	24
Whole number admitted from 1818 to 1855 . . . . .			4006
Discharged, cured . . . . .			1858
Died . . . . .			446

"The character of the patients at different institutions obviously requires differences of moral treatment; and this may change in the same institution. For example, mechanical and agricultural labour, which was foremost in the moral appliances of this Asylum, has long since been abandoned, because the class of sufferers has entirely changed since the establishment of so many hospitals around us.

"The trial was made here for several years, of the entire disuse of all forms of muscular restraint. Much was said and vaunted of this experiment elsewhere, and it was thought well to give it a fair trial. The result was the conviction that no such exclusive system was, here at least, compatible with the true interests of all patients.

"The experiment was also made here of allowing certain patients, in pretty large numbers, to go abroad on their parole. No accident occurred in consequence, and very rarely was a pledge broken. But instead of making the patient more contented, and adding to his happiness, the reverse was eminently the case; and the conclusion was forced upon us, that almost every patient who was so far disordered in mind as to justify detention at all, was too much disordered for even a qualified liberty.

"The intermingling of patients of both sexes, under the eye and supervision of officers and attendants, both in daily religious exercises and in occasions of festivity, was very thoroughly tested in several years' experience. Its inconveniences led, long ago, to its abandonment. Whatever may be the case in other institutions, here such interminglings proved unprofitable and unwise.

"Other elements of moral treatment have been verified in our experience, as in all the preceding history of the insane and the institutions for their relief. The interdiction of the visits and correspondence of friends is ever one of the severest trials of those in charge of hospitals. As the indispensable necessity of such separation was one of the earliest of the recorded facts of medical observation, so it remains true and prominent in every day's experience of every Asylum. If the head of an institution can be tempted in any point to yield or evade his convictions of duty, it will be here—for such convictions he must have with his first practical lessons, and they will keep strengthening with each year of experience. He will be pressed to abandon his duty by those who must be assumed to have a far nearer interest in the sufferer than he can

have. After earnest and prolonged expositions of his grounds of action, and the results of his often-repeated experimentings, and after the most earnest appeals that the welfare and, perhaps, recovery of his patient shall not be put in jeopardy by any feelings or false reasonings or capricious suspicions of friends, he will find fathers and mothers, husbands and wives, brothers and sisters, whose whole knowledge of the subject is bounded by the case in hand, willing and anxious to assume all responsibilities, and take all risks for obtaining this strange gratification. The hospital Superintendent who will the most readily yield to such importunities, backed by, perhaps, the most degrading intimation of the grounds of refusal, will be the most popular. Like the medical practitioner who allows his patient to have his own way as to diet and regimen, he will be deemed and loved as a very indulgent physician. The temptation of the selfish heart to yield, after half a dozen or more pressing solicitations, connected with insinuations which the Superintendent is naturally desirous to meet by the easy demonstration of their falsity, is very strong. This fact ought to be recognized by the friends of the patients, and they should respect his judgment when he opposes their wishes at the cost of pain to himself. Yet probably not one person in fifty would ever have a pang at the reflection that his pertinacity had destroyed or materially lessened the chances of restoration to a loved relative!

"After a life devoted thus far almost exclusively to this specialty, were there any one counsel which I would impress on any one who may be called to this trust, it would be to stand firm to his convictions on this greatest item of moral treatment. Receive no patient where only a half confidence in your character as an honest and competent man is extended. Receive no patient whose friends are not fully cognizant of what duty demands of them in the way of co-operation. Thus assuming a sacred trust, discharge it fully by resisting unreasonable demands, or return it to the responsible friends by a dismissal of the patient. And should you live long enough, as I have done, to look over a catalogue of two or three thousand patients who have been under your care, you will be surprised to see how close a relation has obtained between recovery and a full, cheerful, patient co-operation on the part of friends. Such co-operation extends throughout every ward of an asylum. Each attendant, fit by intelligence and zeal for such duties, does not fail to perceive the waste of bestowing labour where the superstructure is at intervals to be dashed to the ground, and it is not in human nature to re-engage with earnestness and spirit, in a task sure to prove abortive.

"Where a case is deemed beyond cure, or is here merely for custody and as much comfort as possible, no objection is made to the correspondence or visits of proper friends."

In a passage of great dignity and very great beauty, Dr. Bell speaks of his feelings in regard to his severance from the Asylum, closing it with the expression: "I can mark the day of my leaving these walls with a 'white stone,' and enter again the world without one feeling other than that of kindness and goodwill to all mankind."

3. Dr. Ray, of the *Butler Hospital*, gives us the following statistics in his report for 1855:—

	Men.	Women.	Total.
Patients in the Hospital, Dec. 31, 1854 . . . . .	54	77	131
Admitted in course of the year . . . . .	22	34	56
Whole number . . . . .	76	111	187
Discharged, including deaths . . . . .	15	35	50
Remaining, Dec. 31, 1855 . . . . .	61	76	137
Of those discharged, there were cured . . . . .			20
Died . . . . .			11
Whole number of patients, since opening, in 1848 . . . . .			719
Discharged, recovered . . . . .			231
Died . . . . .			132

"The female side of the house has continued to be crowded, and we have been obliged to refuse many applications. On the other side, however, we have never been quite full."

The reports of Dr. Ray are peculiar, in that he generally confines himself to a few subjects, and discusses them at greater length and more in detail than is usually the practice of other Superintendents. The one before us is chiefly devoted to "the duties of the friends (of patients), both towards the patient and towards the hospital."

"It is obvious," he writes, "that unless the officers of the hospital and the friends act in harmony, the object in view cannot be satisfactorily accomplished. While the latter pursue their course, more or less independent of the views and the methods of the former, they cannot reasonably expect a satisfactory result. Such conduct sometimes proceeds from thoughtlessness, but oftener from great confidence in their own notions, and in either case betrays a mischievous inconsistency." He dwells at some length upon the importance of the act of placing a friend in an insane hospital, and observes that, when he is consulted upon the subject, he says to the friends: "Try every other measure that strikes you favourably—a journey, a watering-place, boarding in the country, a voyage to sea, physicians and attendants at home—consult beforehand everybody whose opinion would be allowed to influence your conduct afterward, and then, when you are satisfied that nothing better can be done, bring him to us."

"Having taken the measure, the next duty is to *give it a fair trial*." There are comparatively few who do not imagine that insanity "runs its course as rapidly as a fever, or, at any rate, that the magical influences of a hospital will cut it short. They expect that amendment will soon follow, and are impatient if it is long delayed. \* \* They begin to doubt our skill, apprehend they have been precipitate, and in a few weeks are ready for another experiment. This is neither just to the patient nor fair to us. \* \* \*

"Another duty incumbent on the friends is to *refrain from visiting the patient when so advised by the officers of the hospital*. Every one recognizes, in the abstract, the impropriety of indiscriminate visiting, but imagines that his own particular visit will be an exception to the general rule. \* \* \* The clearest and fullest statement of reasons will seldom prevail against a feeling which is not very remote from that of wounded vanity. \* \* \* This is a matter of so much importance, modifying as it often does, the result of our efforts, that I feel constrained to speak of it with unmistakable plainness. Many persons who would not think, for a moment, of interfering with our medication, show no scruple in setting up their judgment against ours in regard to the effect of an interview with the patient. Indeed, they scarcely recognize our right to have any opinion at all upon the subject, if it differs from theirs. Now, if there is anything in the management of the insane respecting which our position and experience give us peculiar facilities for arriving at the truth, and warrant us in being a little tenacious of our opinion, it is the moral treatment; and that includes, of course, the visits of friends. If here our advice is worth nothing, then our judgment upon any other point may and ought to be disregarded. An act of greater practical inconstancy can hardly be imagined, than that of humbly deferring to our opinion in the matter of drugs, and setting it at naught in some of the most delicate points of moral management. \* \* \*

\* \* \* By calling up a host of old associations, by exciting painful suggestions, and thereby, perhaps, plunging the mind into a chaos of conflicting emotions (as is done by the visits of friends), the vital movements of the brain are precipitated, the excitement which had been allayed by the temporary seclusion is kindled afresh, and thus the hold of disease is strengthened. The dearer the friend, the greater the emotion. \* \* \* It is a great mistake to suppose that the insane are injuriously affected only by such as they dislike, and that the visits of those to whom they are tenderly attached cannot be otherwise than soothing and salutary. It is not so much the *character* as the *strength* of the emotion which does the injury. \* \* \* So susceptible is the patient rendered by the extreme irritability which is a marked feature of insanity, that the sight of a bundle of old clothes from home has been known to cause a

relapse, after convalescence was supposed to be established. \* \* \* Few know how to communicate with a disordered mind, because few have the means of knowing what will, and what will not, affect it pleasantly. \* \* \* One finds it difficult to believe how little prudence is sometimes manifested on these occasions. \* \* \* A patient under our charge, who was just becoming clear and tranquil after a stormy attack, was suddenly made as wild as ever, on being informed by one of this class of visitors, of the death of her child. Strange as it may seem, even the family broils are not unfrequently the topic of conversation, and the attempt is made to bias the patient, one way or the other, while his mind is still reeling under the stroke of disease. During the past year, an interesting young woman, apparently convalescent, was visited by her brother, who took the opportunity to speak to her about her expenses, in a style very unworthy of a brother. The consequence was that she immediately relapsed into a wild, furious, reckless condition, in which, for months together, not a gleam of reason could be discerned. Better motives and better feelings are not always accompanied with the requisite prudence. A visitor once sought an interview with one of our patients, in order to inform him, among other things which he ought to know, that his sister was dead, and that his guardian was mismanaging his estate. We thanked him for his benevolent purpose, but were quite satisfied to take the will for the deed.

"Another duty incumbent upon the friends, in the course of their communications with the patient, is to *abstain from whatever would weaken his confidence in the men and the measures employed in his restoration*. This, at first sight, is so obviously a matter of common sense, that one may well be surprised that the suggestion should be required. It is no new thing, however, for people to place an object before them as worthy of their utmost endeavours, and thenceforth take every means in their power to defeat it. This kind of practical absurdity is not unfrequently witnessed in the management of the patient on the part of the friends. At much expense of time and money they have placed him in the hospital for the benefit of its treatment, and thenceforth they contrive, conscientiously or not, at every visit, to leave an impression on his mind unfavourable to those who have charge of him. \* \* \* Conduct like this has always been among the most disheartening incidents of our course, because it is very common, very mischievous, and without remedy.

"The *duration of an interview* is also an important point, for while a short one might do no harm, a long one would. \* \* \* If friends are heedless of their promise (to make the interview short), we can only look on in silence, and submit with the best possible grace.

"It seems to be impossible for some people to appreciate the motives that lead us to discourage indiscriminate visiting. When advised not to see a patient, they feel as if they were debarred from exercising an undeniable right, and from learning something which they ought to know and which we are desirous of concealing. Hard feelings are produced, harsh remarks are made, a story passes round, and we are actually regarded by many worthy people as having committed an outrage upon the rights of humanity. Even those who have seemed to be convinced by our reasons, and disclaimed all desire to see the patient contrary to our advice, will, not unfrequently, go away and fill the community with their complaints. Now, a duty is no less binding because it is invidious, and we must continue to perform it, though by so doing we shall, no doubt, reap a fruitful harvest of displeasure. \* \* \* Inasmuch as we had no part in forming those natural laws which regulate the movements of disease, and can have no conceivable interest in keeping asunder those who would rejoice in meeting one another, it is not very obvious why we should be blamed for an honest judgment respecting the probable consequences of such an interview.

"It often happens that the patient is placed in the hospital against the advice and consent of certain members of the family circle, and consequently the step has given rise to much hard feeling among them. Under the influence of this state of feeling, they seek to visit the patient, with an indefinite idea of finding something to strengthen their view of the measure, and the very de-

finite one of letting him understand that they did not favour his confinement. When they find that such visits are regarded as incompatible with our management, and that their wishes are not gratified, they are apt to conclude that we have been suborned by their opponents to prevent their enjoying a reasonable and harmless privilege. \* \* \* It sometimes happens, too, that the patient has troops of friends whose sympathies are strongly awakened by the recent misfortune, and who resort to the natural method of testifying their regard, by visiting him in his affliction. For the first few weeks, every day, almost, brings some new one to the house, bent on the same benevolent errand. \* \* \* They have come some distance perhaps, he had always a great regard for them, they are quite sure that no harm can follow their visit, and they go away in no very amiable frame of mind.

"The correspondence of patients with their friends must also be regulated by the same great principles of moral treatment. When the cloud begins to pass away and the affections are seeking their natural channel, both the writing and receiving of letters not only prove a source of harmless gratification, but exert a restorative influence, and are always encouraged by us. In the early stages of the disease, while the mind is chiefly occupied by its suggestions, all this is very different. Then the desire to write is, not so much to gratify a healthy emotion, as to dwell upon their delusions, to proclaim their sufferings, and to pour out their complaints."

We do not recollect ever to have seen this subject so fully treated as in this report, and as it is one which, in its generals and in its details, is applicable to the officers of all institutions for the insane, and the friends of the patients under their care, we have endeavoured to give the substance of the argument. But the chain of Dr. Ray's arguments is like the chain of nature, in the respect that from it

"Whatever link you strike—  
Tenth or ten thousandth—breaks the chain alike."

While reviewing this essay, a case formerly under our care has been forcibly recalled to memory. It is possible that we may have mentioned it, in years gone by, in these notices of reports. A woman, whose delusions were mostly of a religious character, was admitted into the Bloomingdale Asylum. A few weeks afterwards, the clergyman of whose congregation she had been one, had an interview with her, having previously given his solemn pledge that the subject of religion should in no way be trenched upon in her presence. He and the patient had not been five minutes together before they were both upon their knees in prayer. Previously to that time she had always risen at the accustomed hour, and observed decency of dress. On the morning following this interview, she would neither dress nor permit the nurse to dress her, but, stripping off the last garment of her clothing, she sat up in bed, with a blanket thrown over her shoulders, and the urinal, inverted and worn as a hat, upon her head. She remained some months at the Asylum, but never reached a mental state more nearly healthy than at the time of the interview.

4. The Report of the Board of Managers of the *New York State Lunatic Asylum* contains the subjoined notice of the author of one of our most valuable treatises upon Medical Jurisprudence.

"We cannot close this report without alluding to the loss this institution has sustained in the decease of Dr. T. Romeyn Beck, of Albany, who died on the 19th of November last. He had been one of the members of our Board from its first organization, in 1842, and was at the time of his death its President. He was one of the early and influential advocates for the establishment in this State of an asylum for the relief of the insane, and never ceased to bestow gratuitously his time, his talents, and his large knowledge and experience, for the promotion of its success and usefulness. During his whole life he was the servant of the public, and laboured with eminent ability and success for the diffusion of knowledge among men, and for the relief of suffering humanity."

The Superintendent, Dr. Gray, reports the numerical results of the year ending on the 30th of November, 1855, as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year . . . . .	226	224	450
Admitted in the course of the year . . . . .	169	106	275
Whole number . . . . .	395	330	725
Discharged, including deaths . . . . .	165	105	270
Remaining at the end of the year . . . . .	230	225	455
Of those discharged, there were cured . . . . .	70	58	128
Died . . . . .	20	12	32

Deaths from phthisis pulmonalis, 6; exhaustion from mental disease, 10; general paralysis, 4; epilepsy, 3; cardiac disease, 2; old age, 2; intemperance and vice, 1; typhoid fever, 1; suicide, 1; oedema of lungs, 1; ovarian disease, 1.

"Simultaneously, or nearly so, with the prevalence of dysentery in many of the cities and larger villages of this State, an epidemic of that disease made its appearance here. The first case occurred on the 3d of August, and cases occurred from that date until Sept. 4th, when the disease in its epidemic form disappeared. Eighteen males and sixteen females were attacked, all of whom recovered. The disease was characterized by great prostration of strength, and in a number convalescence was very slow and tedious.

"In some of the most severe cases of dysentery and pneumonia, in patients labouring under acute mental disease, convalescence from the latter commenced with the invasion of the former, and was permanent."

That the reader may fully comprehend the following paragraphs, it is necessary to remark that the new system of ventilation by mechanical force, and that of heating by steam have been introduced into the female department of this asylum.

"In reporting the general health of the house, it is necessary to speak separately of the male and female departments, as they have presented a striking contrast in this respect: the general standard of health of the former being much lower than that of the latter, at all seasons, but especially during the winter and spring, attributable, in a great measure, to the difference in the state of the atmosphere in the respective divisions. The prevailing diseases were as follows:—

Male Department.		Female Department.	
Dysentery . . . . .	25	Dysentery . . . . .	16
Erysipelas . . . . .	12	Erysipelas . . . . .	1
Acute articular rheumatism . . . . .	9	Acute articular rheumatism . . . . .	2
Pneumonia . . . . .	6	Bronchitis . . . . .	1
Intermittent fever . . . . .	2		
Typhoid fever . . . . .	2		

"Diarrhœa prevailed in the male wings during the greater part of the year, while among the female patients but ten cases occurred, all coincidently with the epidemic above referred to."

Other conditions being equal in the two departments, these are certainly very strong practical proofs of the beneficial effects of the new method of heating and of ventilation. It is stated in the report that the ventilating fan supplies, in summer, "70,000 cubic feet of air per minute, or 280 feet to each occupant; in fall and spring, about 40,000 feet per minute; and through the winter months about 30,000 feet per minute, or 140 feet per minute to each occupant."

Of the 275 patients received in the course of the year, 31 inherited a predisposition to mental derangement from paternal ancestry, 39 from maternal, and 6 from both. Ten others had collateral relations insane.

Of the 128 patients who recovered, 98 were taken to the asylum within three months from the time of the invasion of the disease, 15 within six months, 7 within twelve months, and eight at periods varying from one to ten years.

"Seven males and one female admitted evinced homicidal, and twenty-three males and twelve females suicidal propensity."

Whole number of patients from Jany. 16, 1843 . . . . .	4,588
Discharged recovered . . . . .	1,917
Died . . . . .	543

Dr. Gray has addressed circulars to the Superintendents of the Poor in the several counties of the State, for the purpose of learning the number and condition of the insane in the county poor-houses. From nine counties no answers have been received. In the others, there were 750, "*of whom but 216 have received the benefit of asylum treatment! Of the whole number 180 are constantly confined in cells, and 70 in mechanical restraint!*"

"One public officer, in speaking of the wretched condition of the insane in county-houses, remarked that one female, who, while here (at the Utica Asylum), occupied a quiet ward, *had been chained in a garret room of the poor-house for eighteen months*; but that her husband had recently removed her to another State, and, he believed, had succeeded in getting her into an asylum. Another, in congratulating the county on the improved condition of the insane, remarked '*that whereas, formerly, a great majority were in chains, now but four or five are kept so constantly; others are kept chained only at night, or perhaps for an hour or so through the day.*' One of the counties of the State, only little more than a year ago, had in the county-house, on the 18th of July, fifty-three insane; on the 25th of the same month, only twenty-nine—twenty-four having died of cholera in one week, and that when there was no cholera in the neighbourhood!"

Americans have been saddened by the accounts of the unenlightened treatment of the insane by the Egyptians, as exemplified at the hospital in Cairo; they have mourned over the barbarity of the Turks, who chain the violent insane at the Timar-hané in Constantinople; they have pitied the Austrians, because, in days not far remote in the past, chains were still in use at the Narrenthurm of Vienna. Mrs. Jellaby was enhaustless of sympathy and of labour for the natives of Borrioboola Gha, while little of either did she expend within the limits of her own dwelling.

5. The New Jersey State Lunatic Asylum has been enlarged by the addition of two wings, one at the eastern, the other at the western extremity of those which formed a part of the original edifice. One of them is completed, the other nearly so. The report for 1855 is embellished by three lithographic pictures. The first is a front view of the Asylum, in its present enlarged state; the second and the third are views of the Randolph Museum and Reading-room, and of the Calisthenium, both of which have been mentioned in former notices. In a medical point of view, the report contains nothing of importance, excepting the movement of the inhabitants of the institution during the year.

	Men.	Women.	Total.
Patients on the 31st of Dec., 1854 . . .	107	106	213
Admitted in course of the year . . .	58	81	139
Whole number . . .	165	187	352
Discharged, including deaths . . .	58	61	119
Remaining, Dec. 31, 1855 . . .	107	126	233

Deaths from general exhaustion, 5; consumption, 5; congestion of brain, 2; dysentery, 2; dropsy, 1; palsy, 1; apoplexy, 1; epilepsy, 1; inflammation of bladder, 1; "and one died suddenly from causes not ascertained, though probably from sudden rupture of an internal bloodvessel, or from effusion into the lungs or about the heart."

6. The report by Dr. Kirkbride, of the Pennsylvania Hospital for the Insane, next demands our attention.

	Men.	Women.	Total.
Patients in the Hospital, Dec. 31, 1854 -	117	106	223
Admitted in course of the year . . .	83	93	176
Whole number . . .	200	199	399
Discharged, including deaths . . .	80	89	169
Remaining, Dec. 31, 1855 . . .	120	110	230
Of those discharged, there were cured .			101
Died . . .	12	9	21

*Causes of Death.*—Acute mania, 5; softening of brain, 2; tubercular consumption, 4; exhaustion from refusal of food, 1; chronic diarrhoea, 3; paralysis, 1; congestion of brain, 1; old age, 1; epilepsy, 1; suicide, 1; abscess, 1.

The hospital has been constantly filled, often crowded, and more than fifty applicants for admission have been rejected in the course of the year.

Of eight patients prematurely removed from the hospital, it was believed that four would have recovered, had they been permitted to remain. Since the earlier years of the operations of the institution, there has been a decided diminution in the number annually removed without sufficient trial of curative measures. "Of the whole number prematurely discharged, it has been estimated from the commencement that about one-half (or an aggregate of not less than seventy) would have been cured under a properly continued course of treatment."

Within the last twenty-four years, twenty-two regularly organized institutions for the insane, each under the direction of one of the State Governments, and one under the federal government, have gone into operation. Most of them are in districts very remote from any previously existing establishment of the kind. Within their walls, soon after their completion, were collected large numbers of old, incurable cases of mental disorders—the relics and the refuse of the insane of all foregoing time. As year after year passed away, it was found that among those who were still admitted, a very large proportion were chronic cases. The vastly greater curability of cases of recent origin over those of remoter origin, was demonstrated here, as it had previously been in the hospitals of Europe. Hence, the Superintendents of our institutions were urgent, as they were unanimous, in their appeals to the people to bring the alienate of reason, at as early a period as possible, to the hospitals, in order to secure the maximum of the hope and the chances of restoration. All this was not only proper, but, under the then existing circumstances, necessary. It still remains so, in some portions of the country. But, in other sections, experience has shown that there are two extremes to the subject, and that one extreme has been succeeded by its opposite. Dr. Brigham, the late and the lamented, was the first, if we mistake not, who wrote of this extreme in his reports, and cautioned people against bringing their insane friends to the Asylum, at a period too early after the invasion of the disease. Dr. Rockwell has urged the same in respect to some forms of the disease—particularly puerperal mania. Dr. Kirkbride now touches upon the subject, and, in our opinion, places it in the proper light.

"The class of cases," he remarks, "that terminate fatally within a fortnight of their admission, as a general rule, are of the form that it would be better should not leave home, at least until that particular train of symptoms which are aggravated by the journey have subsided, and a moderate amount of physical strength been regained.

"Under any circumstances, it is well for patients to be retained at home sufficiently long to impress their friends with some idea of the kind of care and responsibility which belong to the management of such cases, and to prepare them, when they find the resources of a hospital necessary, to give that kind of confidence and persevering aid, which are so very important in carrying out any well-devised system of treatment. The time required to obtain this kind of home experience of what insanity is, and of what is necessary after a patient is transferred to an institution, is not often so long as to interfere materially with the completeness or period of restoration, while it generally secures good feeling and harmonious action on the part of all concerned."

In this report, as in its predecessors, Dr. Kirkbride gives a detailed description of the moral treatment pursued by him. In the course of the year, one hundred and thirty-two evening entertainments were given to such of the patients as might be benefited by them. Of the number mentioned, forty were lectures, delivered by Dr. Lee. Other lectures were given by volunteers from the city; and a large number of evenings were devoted to music, and various modes of amusement and instruction. Among the acquisitions to the apparatus for illustration, is the hydro-oxygen light, applied to the magic lantern.

"No money is more usefully expended than that which is applied to procuring the means for the pleasant and useful occupation and amusement of the patients, for keeping their minds in a proper degree of activity, and for breaking up that listlessness and feeling of monotony which, without great care, are so apt to be manifested, even in the best institutions for the insane. In the organization and arrangement of new hospitals, those to whom this important duty is confided, should just as much see to the provision of a reasonable amount of apparatus and means of different kinds for the amusement, occupation, and instruction of the patients, as a part of their treatment, as anything beyond the mere food required for their nourishment, and the clothing necessary for their comfort."

The subjoined extract has a much broader sphere of applicability than the limits of hospitals for the insane.

"All the good effects of a reasonable amount of regular physical exercise and labour in the open air, both for those whose mental integrity is unimpaired, and for those who are insane, are hardly yet anywhere so fully recognized and appreciated as they should be. The systematic daily use of the muscular system will be found the best means of preventing most of that nervousness, and a considerable portion of those varied forms of obscure affections dependent upon deranged nervous action, so common in the higher stages of civilization, with increased luxury of living, and which bring in their train such loads of wretchedness and discomfort, and embitter so seriously the lives of many who, to a careless observer, would seem to possess most of the elements of human happiness."

The following figures are an abstract of the statistics of the hospital, from the time (1841) at which it was opened:—

	Men.	Women.	Total.
Patients admitted . . . . .	1467	1285	2752
Discharged, including deaths . . . . .	1347	1175	2522
Cured . . . . .	705	631	1336
Died . . . . .	169	123	292
Cases of mania . . . . .	692	665	1357
Melancholia . . . . .	323	363	686
Monomania . . . . .	226	154	380
Dementia . . . . .	219	102	321
Delirium . . . . .	7	4	11
Cured of the cases of mania . . . . .			798
Cured of the cases of melancholia . . . . .			351
Cured of the cases of monomania, . . . . .			160
Cured of the cases of dementia . . . . .			26
Cured of the cases of delirium . . . . .			1
Cases of first attack . . . . .	1069	895	1964
Cases of second attack . . . . .	238	221	459
Cases of third attack . . . . .	79	73	152
Cases of fourth attack . . . . .	36	30	66
Cases of fifth attack . . . . .	14	11	25
Cases of sixth attack . . . . .	13	6	19
Cases of seventh attack . . . . .	7	1	8
Cases of eighth attack . . . . .	1	1	2
Periodical cases, varying from the ninth to the thirty-third paroxysm . . . . .	10	20	30
Single . . . . .	788	507	1295
Married . . . . .	617	620	1237
Widowed . . . . .	62	158	220
Between 20 and 30 years of age, at first attack . . . . .			1043
Between 30 and 40 " " " " . . . . .			655

The Pennsylvania Hospital, established and still continued for the treatment of general diseases, was opened in 1751. The second patient received was insane, and persons suffering from mental alienation were constantly admitted and treated within its wards until a branch establishment, the Pennsylvania

Hospital for the Insane, was erected by the corporation, and opened, as before mentioned, in 1841.

"Although," says the report, "the number of patients in the house is much larger than formerly, still the great increase in the number treated is best illustrated by the fact that, in the year just closed, as many patients were received as in more than two and a half years before this institution was opened, and that the number of cases admitted during the fifteen years this hospital has been in operation, is within 78 as many as were received in the previous forty years. The number restored to health and to society, in the year 1855, was more than equal to what left the hospital in Philadelphia, cured, during the last five years it received the insane. In the whole fifteen years here there were about as many recoveries as in the previous sixty-nine years, while the ratio of mortality has sensibly diminished." Query: Had the doctrines and the practice, in regard to bleeding, which prevailed in the two establishments—almost diametrically opposed as those doctrines and that practice were—anything to do with the results last mentioned?

Dr. Kirkbride gives a detailed description of the steam apparatus for warming and ventilation which has been introduced, with the most beneficial results, into the hospital buildings. An appendix contains an appeal to the people of Pennsylvania in favour of the erection of the new hospital (on the same farm with the present one), which has been mentioned in our previous notices. The liberal sum of one hundred and twenty thousand dollars has already been subscribed, and the building will be commenced when the sum shall be one hundred and fifty thousand dollars.

7. Dr. Curwen, of the State Lunatic Hospital of Pennsylvania, gives the subjoined record of the medical history of that institution, for the year 1855:—

	Men.	Women.	Total.
Patients at the beginning of the year . . . . .	127	87	214
Admitted in course of the year . . . . .	98	66	164
Whole number . . . . .	225	153	378
Discharged, including deaths . . . . .	87	41	128
Remaining at the end of the year . . . . .	138	112	250
Of those discharged, there were cured . . . . .			26
Died . . . . .			29

"Death was occasioned in seventeen cases by the exhaustion produced by the continuance of the mental disorder; in four cases by epilepsy, in four cases by paralysis, in two cases by exhaustive mania, in one case by consumption, and in one case by dysentery."

Like the superintendents of most of the other similar institutions, Dr. Curwen expresses his regret that many patients are prematurely removed. As one of the effects of this action, he says: "It too often happens that, leaving the hospital partially restored, they misunderstand and misinterpret the motives and acts not only of their friends who placed them in the hospital, but of all in the institution who have been in any way connected with their treatment; and these distorted views and feelings will influence all their actions and conversation, and they will thus be the means, very frequently, of doing an injury to those who have been actuated only by the best motives."

The table of the ages, at the time of attack, of all the patients who have been admitted into this hospital, presents an anomaly in the history of insanity in this country, so far as investigations upon the point have hitherto been prosecuted.

Of 626 patients, 152 are recorded in the decennium from 20 to 30 years, and 182 in that from 30 to 40. Thus the latter number *exceeds* the former by but a very small fraction less than twenty per cent. There is no other similar table within our knowledge in which the former number, that of the decennium 20 to 30, is not much the larger of the two. We can suggest no cause for this peculiarity, unless it be in the character of the population of the interior of Pennsylvania. Even this does not appear plausible, since a very considerable

proportion of the patients of the Pennsylvania Hospital for the Insane have been from that district, and at that institution the number in the decennium 20 to 30 years is a fraction *more than fifty-nine per cent.* greater than that between 30 and 40. In the former there were 1,043 patients; in the latter, but 655. The Pennsylvania Hospital is the nearest institution, eastwardly, to that of Harrisburg. Now let us examine the subject at the nearest institution westwardly from it. At the asylum in Columbus, Ohio, of 2,775 patients, the number between the ages of 20 and 30 years, at the time of the origin of their mental disorder, was 1,098; that between 30 and 40 was but 725. The former exceeds the latter by *more than fifty-one per cent.* In view of these facts we are induced to believe that there is some error in the table of the Harrisburg report.

By resolution of the Legislature, one of the cabinets collected in the geological survey of the State, is deposited in one of the patients' museums of this hospital. "The collection is large, numbering over five thousand specimens, and is quite rich in the peculiar mineral products of the State. It is, however, to be regretted that many of the finest specimens called for by the catalogue, should have been lost."

On the 16th of June, 1855, the buildings of the hospital were considerably injured by a violent tornado. The roof of one of the museums, and half of that of the carriage-house were blown off, and the latter building otherwise so shattered as to render its demolition necessary. The large portico of the central front of the hospital was started from the building, and much of the slate blown from its roof. Other parts of the roof and the spouting were much injured, and many of the fences around the hospital laid prostrate.

We had the pleasure, not long ago, of accompanying Dr. Curwen through the several departments of the hospital under his superintendence. The general plan of the edifice is one of the best hitherto designed. But the structure is very unsubstantial, and the original arrangements for heating were very imperfect. The latter defect has been overcome by new apparatus introduced under the direction of Dr. Curwen. The former has no effectual remedy short of entire demolition, and reconstruction under proper supervision. So long as the building stands—but that will not be long—it will be a monument to the folly of those who cause such structures to be erected by contract, and permit the contractor to make a surface which, although it may appear satisfactory at the moment of completion, has no solidity beneath it, and in a very short time becomes itself exceedingly imperfect, through defects in the material.

We were much pleased by the great neatness of the female department, the air of comfort by which it was pervaded, and the general quietude of the patients. We were present at a concert of instrumental music, given in the chapel, by a German band, from Harrisburg. It was attended by about one hundred and twenty-five patients, who appeared to be interested and gratified.

8. At the date of the last report emanating from the Indiana Hospital for the Insane, a new wing to the edifice of that institution was nearly completed. To use the language of its Commissioners, "this part of the hospital, in the opinion of scientific men, is the best arranged and adapted to the purposes for which it is designed, of any similar building in the Union." Another wing, corresponding with this, is to be constructed at the opposite extremity of the edifice.

	Men.	Women.	Total.
Patients in the Hospital, October 31st, 1854	73	87	160
Admitted in the course of the year . . .	79	92	171
Whole number . . . . .	152	179	331
Discharged, including deaths . . . . .	64	71	135
Remaining, Oct. 31, 1855 . . . . .	88	108	196
Of those discharged, there were cured . . .	52	63	115
Died . . . . .	12	8	20

Deaths from maniacal exhaustion, 3; pulmonary consumption, 3; typhomania, 2; tabes mesenterica, 2; gastro-enteritis, 2; general paralysis, erysipelas,

purpura hæmorrhagica, dropsy, inflammation of the brain, dysentery, apoplexy, and epilepsy, 1 each. The deaths of five of the patients occurred in a few days after their admission, and one in four and a half hours after her reception. The friends of the deceased awaited the result, and then removed the remains back to her home."

Dr. Athon mentions the year 1855 as the most unhealthy, in the region of the hospital, of any since the institution was founded. "While all around, and throughout the country, have suffered to an unusual extent from febrile diseases, the hospital has been spared this common autumnal scourge. Every phase of fever, however common to this region, has been brought here by newly-received patients. Indeed, with few exceptions, every insane person admitted to the wards during the past summer, and thus far this fall, had fever in some form or other; but notwithstanding these unfavourable circumstances, we have been fortunate enough to escape." This exemption is attributed, in part, to the salubrious site, and in part to the rigid and persevering enforcement of hygienic rules, "without which," remarks Dr. Athon, "we should be visited every fall by the whole catalogue of autumnal afflictions."

The anniversaries of May-day and the fourth of July are regularly observed as holidays at this hospital. Of the former, in 1855, it is said that "above a hundred patients partook of a repast prepared for the occasion in the adjoining wood. Those of the household unable to attend, were waited upon in their wards, and everything made to approximate as nearly to the scene in the grove as the surrounding circumstances would permit." On the fourth of July, "including the employes, above two hundred inmates partook of an appropriate dinner in the grove." The Declaration of Independence was read, and was followed by an oration. "The ceremonies closed with a dance on the green."

	Men.	Women.	Total.
Whole number of patients since the hospital was opened . . . . .	451	459	910
Discharged cured . . . . .	244	241	485
Died . . . . .			83

From the table of "probable causes" of these cases, we select the following:—

	Men.	Women.	Total.
"Spiritual rappings . . . . .	18	13	31
"Excessive use of tobacco . . . . .	13	10	23
"Abuse from drunken husbands . . . . .		15	15
"Husbands in California . . . . .		3	3
"Reading vile books . . . . .	2	0	2
"Use of Thompsonian medicines" . . . . .	1	0	1

On the supposition that these were the *real* causes, the women of Indiana follow the example of the men, in the use of tobacco, to a vastly greater extent than do their sisters of the Atlantic States.

In reference to the utility of airing-courts, Dr. Athon gives the subjoined opinion: "I have no hesitancy in saying that ten per cent. more cures could be effected, were our grounds arranged so that every inmate would be as safe out as in the wards."

The doctor opposes, and we think very properly, the suggestion which has been made to prepare apartments for the incurable insane in the almshouses of their respective counties.

P. E.

ART. XVI.—*Lectures on the Principles and Methods of Medical Observation and Research, for the Use of Advanced Students and Junior Practitioners.* By THOMAS LAYCOCK, M. D., F. R. S. E., F. R. C. P., Professor of the Practice of Medicine and of Clinical Medicine in the University of Edinburgh, etc. etc. "Homo, naturæ minister et interpres, tantum facit et intelligit quantum de naturæ ordine re vel mente observavit; nec amplius scit aut potest."—BACON. Philadelphia: Blanchard & Lea, 1857. 12mo. pp. 209.

THE principles and methods of medical observation and research have received too little attention at the hands of medical teachers and writers. With the present zeal and activity in observing and prosecuting researches in the several branches of medical knowledge, the student of medicine and the practitioner would be at a loss in seeking for instruction as regards the use of reason in the investigation of truth. Logic, in its general application, is too much neglected, but studies pertaining to diseases involve difficulties so peculiar that the means of pursuing them with success claim special consideration; and none are so well qualified to treat of the application of logical principles and methods to medical investigations, as they who, in addition to a thorough acquaintance with the subject in a theoretical point of view, have themselves been engaged in medical observation and research. In giving a few lectures on this subject to the medical public, then, Prof. Laycock has entered on a field of bibliography by no means preoccupied. We should be glad to see a much more elaborate treatise devoted to the same objects.

The work is made up of seven lectures. The first lecture treats of experience in medicine; of the combination of theory with experience, and the fallacious use of theories. Empirical diagnosis and therapeutics, empirical prognosis, and empirical etiology, are defined and illustrated. "Experience is philosophy—the philosophy of common sense." In other words, there is such a thing as a wise experience, and the attainment of this experience comes from "long-continued, sedulous, accurate observation of manifest external phenomena—observation independently of aids, and therefore prompt, because practicable under all circumstances, in which the eyes, the ears, and senses generally can co-operate with the instinctive exercise of the judgment, or common sense, as it is termed. There must be the practised eye and ear, trained by long use; the practised judgment, trained by careful exercise. All men have not the natural qualities; many want the industry; but to those who have both, experience will afford a power of intention such as is sometimes really marvellous in its results." But theory, as the author remarks, cannot be dispensed with in observation; and, moreover, if rightly used, it is a necessary element not only in the advancement, but in the practical application of all knowledge. Using this term theory in its proper sense, viz., as denoting the contemplative or speculative part of science, to observe without theorizing is simply impossible; and were it possible, it would be observation without investigation, and, therefore, utterly fruitless. In fact, the wise experience of which the author speaks, and which he terms the philosophy of common sense, is neither more nor less than theoretical knowledge based on observation. Wisdom, philosophy, and common sense, as applied to experience, are but different names for expressing theoretical and practical knowledge.

As observation may be false, so may a fallacious use be made of theories. The author cites certain illustrations of the latter, which are sufficiently common, and which not only are the source of speculative errors, but lead to serious results in their influence on practice. We could not do justice to these illustrations without quoting more largely than our limits will permit; we must therefore content ourselves with commending them to the attention of the student and practitioner.

The general methods and objects of clinical study are considered in the second lecture. In regard to clinical study, the author justly remarks that, to secure requisite industry, minuteness, and accuracy, the mind must be interested.

If the study be not interesting, the duties of the clinical observer, at the outset, at least, must be peculiarly tiresome and repulsive. As a means of awakening and sustaining interest, the author advises the student to construct a theory or a hypothesis as to the sciential relations of the symptoms to each other, cautioning him to remember that the theory is of no other use than to stimulate and guide his inquiries. We doubt the propriety of this advice. The tendency to speculate or theorize beyond the warrant of facts is usually so strong that it requires to be repressed rather than encouraged. The task of observing, which has less intrinsic attractions, is apt to be neglected. Moreover, it conduces to false observation, especially if the observer be unpractised, to study phenomena by the light of a preconceived theory: in this way originates a large share of the false facts with which medicine abounds. We would say, rather, to the young student, observe and record phenomena with reference to the study of their characters, order of sequence, frequency of occurrence, and their various relations, at the same time studying the recorded observations of others, in order either to confirm the accuracy of the latter, or to disprove them. By this process the student makes the practical knowledge acquired by others emphatically his own. He may then indulge the hope of being able to extend the boundaries of knowledge by his own researches; and this will make him feel an interest in his clinical labours. Moreover, by this time the influence of habit comes to his support, and he continues to labour because it has become agreeable for its own sake.

We are disposed to take exceptions to some other remarks under the head of "Observation and Deduction Instinctive." The author compares the examination of a patient, by the practised physician, to the process of perception by which a written or printed sentence is read. "The constituent elements of the word (the letters) or of the sentence (the words) are never so presented to our consciousness that we note each singly. Experienced tact in diagnosis never analyzes; never spells the symptom-letters, or stops at the pathognomonic words, but reads off the case at once, the moment that the whole of the characters become cognizant to the perception. This is the reason why, in intuitive diagnosis, so few physicians are able to give the grounds of their decision." \* \* "What you need, then, for the acquisition of this intuitive sagacity in the perception of disease, is a familiarity with morbid states having leading characteristics, so that an opportunity is afforded to the mind of instinctively arranging into the proper words and sentences, or into the evolved outlines, if the metaphor may be permitted, all those minute and separately inappreciable phenomena which reach the consciousness rather as *results* than as *objects* of thought." Now, this notion of an *intuitive sagacity* is one under which the ignorant practitioner generally shelters himself; it is the superior excellence which the self-styled "practical man" arrogates. We regret to see this position taken by Prof. Laycock. The comparison to reading without the consciousness of an analytical process, is more plausible and striking than just. Words collocated in sentences are the unvarying representatives of ideas, and they become such by simple association. To discriminate diseases involves the exercise of the judgment upon elements which are liable to more or less fluctuation, and are never precisely the same in two different instances. We have little faith in an ability to make diagnoses without the deliberate, conscious exercise of the understanding. When made by a sort of instinctive effort, it is nothing more than a guess, which will be right or wrong in a large or small ratio of cases, according to the shrewdness of the guesser. Doubtless, in proportion to the practised familiarity of the observer with the phenomena and laws of diseases, the discrimination will be made with quickness, and with small apparent exertion; but we believe that the diagnostician whose judgment is most reliable is the one who understands most clearly the grounds on which his conclusions are based.

For the same reason that we have taken the foregoing exceptions, viz., the encouragement which the author's remarks afford to ignorance, although by no means so intended, we find an occasion for criticism in the views presented under the head of "Aids to Clinical Research." Having said, and justly, that the study of these aids, such as the microscope and stethoscope, may be pursued too exclusively, the author proceeds as follows: "Tact consists in the

prompt as well as accurate detection of diseased states ; it is, therefore, incompatible with a slavish dependence upon these various aids, for the obvious reason that to use them occupies time. Further, in the daily routine of a busy professional life, occasions will often arise when their use is impracticable. Delay may be dangerous ; the patient may object ; the clothing cannot be removed for physical exploration ; the fluids cannot be obtained for chemical or microscopic inquiry ; or, if obtainable, the microscope and chemical apparatus may not be at hand." \* \* \* "By far the greater part of you will necessarily have to meet the several exigencies of general practice, and these, for the most part, are incompatible with much instrumental research." We must dissent *in toto* from these views. We cannot but regard as highly injurious the influence which they are likely to exert on the medical student and the young practitioner. Assuredly, in view of the importance, nay, the necessity, of physical exploration, as well as examinations by means of the microscope and chemical reagents, in certain cases, in order to obtain information on which depends inferences, not only as regards the pathological character of the disease, but the appropriate therapeutical measures, the pressure of business, the reluctance of the patient to remove his clothing, and the difficulty of obtaining fluids, are not sufficient to excuse the neglect of these aids to clinical research. Let it be generally admitted, as it is by the author, that the exigencies of general practice are for the most part incompatible with much instrumental research, and students of medicine will rarely feel that there are sufficient inducements to bestow any attention on these indispensable means of investigation. A prevailing impression that the employment of these means is attended with inconveniences such as to render it not culpable to neglect them, operates much more adversely to their general use than the intrinsic difficulties pertaining to their availability. Dissenting from the author's views to which we have just referred, we cannot concur with him in his advice to the student to study the external characteristics of disease, or what he calls "physiognomical diagnosis," in order to be independent of other aids in diagnosis. Let the former be studied but by no means to the exclusion of the latter.

Lecture third is devoted to the "Methods of Clinical Examination." After some excellent remarks on the objects in clinical observation and the different modes of examination, the author gives, under the head of the physiognomy of the different diatheses and cachexiæ, a list of the external characteristics by which these are severally distinguished. He recognizes the following diatheses and cachexiæ: the strumous, the arthritic, the adipose, the hemorrhagic, the nervous, the cancerous, and the hæmic. We cannot regard this portion of the work as of great value, inasmuch as the present state of pathological knowledge hardly warrants us in determining the number of diatheses and cachexiæ which are essentially distinct ; still less are we able to determine the essential points of distinction. The practical advantage of committing to memory the external characteristics enumerated under the heads of the several diatheses and cachexiæ, will hardly compensate the student and practitioner for the task ; but we would not say that the statements with respect to their physiognomical features, which the author has gleaned from numerous systematic works on medicine, are altogether valueless.

Lecture fourth, "On Prognosis and the Order of Succession of Morbid Phenomena," will repay a careful perusal. Were we to seek for matter for criticism in the lecture, we should question the right of the author to assume the correctness of the ancient doctrine of critical days ; but to discuss this subject we should find it necessary to give to it much more space than it holds in the volume before us.

Lecture fifth is "On the due Estimate of Treatment, and on the Management of the Case." We find in this lecture nothing to criticize, save that we should have been glad to have had the several topics treated at greater length. The student and the practitioner will read it with interest and profit. The quotation of a single sentence must suffice. "It is a great point in your art to know when to do nothing, and to be able firmly to resist all solicitations to be very actively doing something." How true and how important is this practical precept!

The sixth lecture is devoted to the consideration of the "Numerical Method of Research in Medicine." The nature and value of this method are candidly and, as we believe, correctly stated. The gist of the matter is, in fact, contained in the following sentences: "The numerical method is, in short, none other than that method by which experience and induction are rendered as accurate as possible. When, therefore, we speak of the numerical method in reference to medical science, we only speak, in truth, of a more strict and more systematic method of observation and of induction than the method of common experience." The limitations as regard the special applications of the numerical method, especially to researches in etiology and in therapeutics, are concisely and correctly stated; as, also, the requisites for its safe and successful employment in medical researches.

The subject of the concluding lecture is, "The Analogical, Philosophical, or purely Inductive Method of Research." This lecture, which the author evidently regards as the most important of the series, is, for us, the least satisfactory. After a careful perusal of it, we confess that we do not get a clear idea of the nature and applications of the great principle which it is the author's aim to develop. Admitting that this may be due to deficient power of comprehension on our part, it is not, perhaps, assuming too much to infer that the advanced medical student and the junior practitioner, for whose benefit the work has been prepared, will be likely to experience a similar difficulty. The fundamental principle of the analogical, philosophical, or purely inductive method of research is thus stated: "Expressed more technically, we may say that the primary or fundamental principle of life is the unity of structure and function of organisms both in time and space. This, then, is the point to which all your theories should tend, the principle by which they should all be regulated. This should ever be present to your thoughts; this should ever guide your observations. Thus used, it is the bond that will bind science, and observation, and tact together, and confer upon you the highest qualities of the practitioner, namely, the power to take profound philosophical views, and the ability to apply those views to the practice of your art. The principle thus announced will doubtless be severely questioned, and its truth controverted, but it will finally be almost universally accepted."

As "practical examples of the conduct of an analogical investigation," the author considers, first, an investigation of the pathology of "bronzed skin;" and, second, "the metastatic character and general pathology of gout and rheumatism." As illustrations of the logical use of analogy in medical questions, these examples are sufficiently intelligible and instructive, but we are at a loss to perceive the exemplification which they afford of the great principle announced in the above quotation. Other readers, however, may in this respect be more fortunate than ourselves.

We have noticed in this brief article the portions of the lectures which appear to us open to criticism. Irrespective of these, the work is interesting and suggestive of trains of thought and inquiry which are of great importance, as well as interest, both to the student and practitioner of medicine. We are glad to see even so small a volume, treating on subjects pertaining to medical logic, by so able a thinker and writer as Prof. Laycock, and we hope that it may be followed by a larger work, either from the same source or by some other competent hand.

A. F.

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ART. XVII.—*The History and Statistics of Ovariectomy, and the Circumstances under which the Operation may be regarded as Safe and Expedient: being a Dissertation to which the Prize of the Massachusetts Medical Society was awarded, May, 1856.* By GEORGE H. LYMAN, M. D. Boston: 1856. 8vo., pp. 146.

THE monograph of Dr. Lyman is evidently the fruit of a vast amount of well directed and laborious research; and must command unusual attention as by far the fullest and most reliable contribution to the study of the results of ovario-

tomy that has hitherto appeared. Its author has earned the gratitude of future investigators in the same field; for, with his numerous references and comprehensive tables and analyses, he has smoothed away many discouraging difficulties in their task. The character of his performances as a collector, sifter and arranger of statistical materials—both old and new—can only be appreciated by those whose patience and perseverance have been tried in the exhausting drudgery of similar pursuits. In addition to these essential attributes of a prize paper on such a subject, we note an elegance of style and a general accuracy and candor of tone which do still further honour to the verdict of the Massachusetts Society, while they materially add to the authority of the dissertation.

We have studied its various and comparatively numerous details with great interest and considerable care; but although Dr. Lyman's exposition of the History and Statistics of Ovariectomy is probably the fullest yet published, we are unable to consider it complete enough to warrant any positive conclusions as to the expediency of the operation, much less its safety, under any circumstances whatever. Under this impression, we of course regret to find even a qualified conclusion arrived at by our author in favour of the abdominal section under certain circumstances.

Before entering upon the discussion of the operation for extirpation of the ovary, some twenty-seven pages are devoted to a brief review of the other modes of treatment which have been proposed or adopted. Under this head internal medication, paracentesis, paracentesis combined with other treatment, incision, permanent opening in the cyst, and lastly, injection of the cyst, are more or less fully noticed, and at the same time illustrated with such cases as the compiler may have met with in the search for cases of ovariectomy.

The questions involved in the preliminary sketch are, in our view, more interesting if not more important practically than those which are the leading object of the paper. We cannot complain that they have received so small a share of attention in an essay expressly occupied with another subject of inquiry, but we should nevertheless have been glad to meet with a correspondingly rich display of cases in which the available alternative methods of operation might have been compared in their progress and results with the more radical and dangerous procedure. We are disposed, for instance, to believe that unequivocal cases of tapping, or tapping and subsequent treatment, and of tapping combined with injection of tincture of iodine, are rapidly approaching in number those of extirpation; and we should like to see a tabular statement of details of such cases similar in reach and character to the table of three hundred cases which constitutes the principal feature of the work before us. We might thus be enabled to determine, perhaps with greater certainty and ease, the circumstances under which the milder operations may be regarded as safe and expedient, whether with or without reference to the graver alternative of abdominal incision.

As we have neither space nor time for a critical examination of the tables, we must content ourselves with the author's exhibit of the facts which he gathers from his own analysis.

"In three-tenths of the cases, the operation could not be completed.

"The rate of mortality in all the operations was 40.13 per cent.

"In seven-tenths of the cases the operation was completed, with a resulting mortality of 42.78 per cent.

"In the unfinished operations the mortality was 30.68 per cent.

"The proportion between the whole number of recoveries, *after the removal of the tumour*, and the whole number of operations undertaken in hope of such a result, we find to be as 39.66 to 100, or less than two-fifths!

"Adhesions caused the abandonment of the operation in 22.06 per cent. of the whole number, or caused 77.27 per cent. of the failures.

"No tumour was found in nearly three per cent. of the whole.

"Where adhesions complicated the removal, 47.82 per cent. died; where no adhesions complicated the removal, 32 per cent. only died.

"Of the whole number of short incisions, 30.76 per cent. died; of those

completed, 38.33 per cent. died; of those not completed, 22.80 per cent. only died.

"Of the whole number of long incisions, 41.95 per cent. died; of those completed, 41.46 died; and of those not completed, 45 per cent. died.

"Previous tapping does not always cause adhesions.

"As far as these cases go, the mortality is least between the ages of fifty and sixty, and greatest under twenty.

"The mortality is least when the disease is of between three and four years' duration.

"There is but little difference in the mortality between the married and single.

"The right ovary is more often diseased than the left, though less so than often stated.

"Of the above fatal cases, 42.35 per cent. were from peritonitis, 23.52 per cent. from hemorrhage.

"Death ensued, upon an average, the eighth day; the average of deaths from peritonitis being also the eighth day; and those from hemorrhage in twenty-two hours.

"And, finally, in more than ten per cent. of the cases, important errors of diagnosis occurred."—Pp. 116, 117.

The general inference from the tables is, that 40.13 per cent. are fatal and that more than three fifths are unsuccessful, "Nor does this look so forbidding," says our author, "when we compare it with other capital operations." (!) He then goes on in support of this proposition with a comparison between this mortality and that from amputations and other operations performed in hospital practice! We shall return to this mode of working out the problem directly; in the mean time, let us read the concluding paragraph in which are given the answers to the main questions proposed by the title of the essay.

"By far the strongest objection would appear to consist in the imperfection of the diagnosis. Were this removed, the rate of mortality would doubtless be less than that of any of the larger operations; and, even in its present state, we have seen that it compares not unfavourably with them.

"If, then, in view of the foregoing statistics, we may claim for the operation that it is, in certain cases, justifiable, what are these cases? or, in other words, 'Under what circumstances may the operation be regarded as safe and expedient?'

"In view of the fact that the tumour is occasionally of very slow growth, and that the general health of patients suffering from cystic disease of the ovary is ordinarily good, unless inflammation of the cyst supervenes, or some accident causes its rapid development, we should say that it was neither safe nor expedient to put in force any operative procedure, before constitutional symptoms are excited by the suffering from distension, and the consequent disturbance of the functions of digestion, respiration, &c.

"The fear of adhesions, or other future contingency, does not render an operation safe or expedient, as has been often urged: for those contingencies may never arise.

"If any operation is contemplated, the above period (*i. e.*, that in which serious constitutional disturbance begins to show itself) should be selected; further delay diminishing the chances of a favourable result, by the progressive loss of health and strength, and the liability to repeated attacks of subacute inflammation of the cyst, and the formation of adhesions.

"It is neither safe nor expedient to operate, if there be any signs of a malignant diathesis.

"The safety of the operation is greatly diminished by the co-existence of uterine and other visceral disease; and hence it is neither safe nor expedient to operate until every known method of diagnosis has been exhausted—as the touch, the use of the uterine sound, auscultation, percussion, &c.; after which, no case, no matter how positive apparently the diagnosis may be, should be operated upon until after previous *tapping*, that every certainty, short of actual sight, may be possessed.

"This preliminary tapping should be followed by moderate pressure, in the

hope of checking the refilling of the cyst, as such favourable results have occasionally followed; and the patient is in no worse condition for ulterior measures, even should the tapping prove useless.

"If, after the removal of the characteristic fluid, it again accumulates, no 'bold incisions' are justifiable until the smallest possible exploratory incision has shown that no adhesions exist, so far as this can be ascertained by the introduction of a finger or probe.

"Under the above conditions alone do we think that ovariectomy can be considered both safe and expedient. But the further question now presents itself, Is not this operation expedient, even though it may be less safe, in many of the remaining cases?

"The answer to this depends entirely upon how far it is justifiable for a surgeon to assume the risk of cutting short a life, which, at any rate, must terminate in a few weeks or months at most, in the very uncertain hope of prolonging it by operation. This is a question of medical ethics which each individual conscience must answer for itself, and upon which an honest difference of opinion may, and in fact does, exist. If, however, we take as our guide the surgical practice in many malignant diseases—the treatment, by amputation, of inveterate cases of necrosis, articular disease, &c., the operations of embryotomy, or Cæsarean section—we should say, without hesitation, that very many of the more desperate cases of ovarian tumour were legitimate subjects for operation. Has the surgeon a right to say to one, who, with death staring her in the face, urgently demands, as her last hope of life, such relief as his art may perchance afford, 'I dare not assume the responsibility?'

"We think, then, that if the facts are as stated in the foregoing paper, the following conclusions are deducible from them:—

"1. The mortality attendant upon ovariectomy is no greater than it is after other capital operations.

"2. The mortality resulting from extensive incisions of the peritoneum is generally over-estimated.

"3. Fully developed cystic disease of the ovary tends rapidly to a fatal result.

"4. No method of treatment heretofore devised for it is so successful as extirpation; excepting, possibly, that by injection with iodine, of the results from which, we have, as yet, insufficient statistics.

"5. The operation is unjustifiable in the early stages of the disease.

"6. After active development has commenced, with the supervention of constitutional symptoms, the sooner the operation is performed, the greater the chance of recovery.

"7. No rule can be laid down as to the length of the incision, other than the general one—that, the shorter it is, the less the mortality; and that, therefore, the primary incision should always be small, and extended afterwards as may be necessary, according to the exigencies of each particular case.

"8. If, after the operation is commenced, extensive adhesions should be discovered, either the complete abandonment of the intended extirpation, or the attempt to cause suppuration, and gradual contraction of the cyst, by means of a permanent external opening, are to be preferred to the division of the adhesions, and completion of the operation as originally designed.

"Although, from the statistics given, the conclusion has been formed, that, under given conditions, extirpation is the safest remedy which can be used for the radical cure of encysted ovarian tumours, it must be confessed that many elements to an entirely satisfactory decision are still wanting—such as the natural history of the disease, uninfluenced by surgical treatment of any kind, and the results of tapping and spontaneous rupture, as shown by a larger number of cases than have yet been collected. As a contribution to this end, it was originally intended to append, in addition to the following section upon diagnosis, a table of some fifty cases each of tapping and spontaneous rupture, together with a considerable number of cases resulting fatally, in which no surgical treatment was adopted: but other avocations have delayed the fulfilment of this design; and, as they are not called for by the question proposed, the idea is, for the present, at least, abandoned, and this portion of the essay

concluded in the words of Mr. Walne, who, after recommending that the operation be undertaken only in well-selected cases, says, 'Still less let me be supposed to advise that any surgeon should engage in its performance who has not, by habits of operating—yet more by long habits of careful observation and treatment of disease generally, and by very considerate and studious examination of the nature and connections of this particular disease, and the tendencies of the viscera, which may be involved in mischief by an ill-judged operation, or ill-conducted after treatment—qualified himself to cope with difficulties from which it is unreasonable to expect an exemption.' Words of sound judgment, which are commended to the careful consideration of that numerous class of individuals who look upon ovariectomy as a very simple operation, requiring no particular surgical skill."—Pp. 120-24.

We are glad to find in the closing paragraph above quoted, a wholesome doubt confessed against his own qualified decision in favour of extirpation, as "under given conditions," "the safest remedy which can be used for the radical cure of encysted ovarian tumours." He acknowledges, in spite of the statistics so laboriously sought and admirably arranged and exhibited in all available—and we had almost said, in view of their fractional percentages, imaginary—aspects, that "many elements to an entirely satisfactory decision are still wanting; such as the natural history of the disease uninfluenced by surgical treatment of any kind, and the result of tapping and spontaneous rupture, as shown by a larger number of cases than have yet been collected." He might have added the results of the iodine injection which has recently been the subject of much discussion, and has been strongly advocated in the French Academy of Medicine, and in the Medico-Chirurgical Society of Edinburgh.

We agree with him entirely, that it is impossible to reach a positive determination of the question of the treatment of ovarian disease, until the whole subject has been far more thoroughly and precisely studied in all its bearings. For this purpose we need careful and distinct observations, to the extent, not of one, two or three hundreds, but of thousands, to make percentages which are entitled to authority in a matter so nearly one of life and death. Even with these large numbers, such are the various forms of the ovarian disorder, the various general pathological conditions, the various antecedent and existing moral and physical influences at work upon the different patients, that the assembled cases may be said to have little but the sex in common; and under the very best classification they must be distributed into numerous groups, each of which, in order to afford a practicable percentage, must count at least its hundred cases. The aid afforded by the most extensive and best arranged statistics, however well authenticated, is but approximative after all; since each case has to be disposed of, in actual practice, on its individual merits; just as in life insurance offices, where statistical calculations are best understood and general results most positive, each applicant is accepted or rejected only after a rigorous personal examination, analogous to that which each patient ought to undergo before being subjected to any serious operative measures.

These caveats, of course, apply scarcely less urgently to the statistical results of all important operations, than to those of doubtful value or necessity. For the purposes of comparison, therefore, the ovariectomy results and those of other capital operations so often balanced against each other in the desperate attempt to mask the danger of the former, are useless (both being inconclusive), even supposing that they otherwise possessed in common any characteristic of history, sex, condition or surrounding influences, except the risk of life.

It is for practitioners of amputation and the other leading operations involved in the newly-discovered and still-mooted responsibility, to determine and provide against the fatality imputed to these remedies of *last resort*; but admitting for the moment the charge against them to be established, it does not follow that an old wrong is to justify a new one, merely because the former has long enjoyed a confidence which is vainly claimed for the latter. Nothing in our view more strikingly betrays the weakness of the position taken by the

ovariotomists than the frequency and earnestness with which they appeal to this delusive issue.

We had intended to enlarge more fully upon this matter of comparison between hospital operation statistics—such as they are, on the one side—and ovariectomy statistics—still more unavoidably imperfect, incongruous and limited in range, as well as meagre and inconclusive, on the other—but we have since found ourselves so completely and forcibly anticipated by an authoritative writer (Dr. Duncan, of Edinburgh) in an article quoted in the Quarterly Summary of the present number (see Dep. Surgery, p. 519), that we gladly refer to his capital *exposé* in support of the position here maintained. To the same paper we would direct the reader for an admirable review of the strange perversions of statistics which the advocates of ovariectomy are led into in attacking palliative and other operations, such as tapping and injections, and contending for their own.

Grave as the mortality from the operation for extirpation is assumed to be by Dr. Lyman, we strongly suspect that it is still underrated. Our author is fully alive to the painful truth that many fatal cases are never allowed to meet the light, and does not hesitate to dwell upon this as seriously impairing his own confidence in the value of the deductions from the cases of all kinds within his reach. It is quite as probable, moreover, that the proportion of errors of diagnosis, frightful though it be, is by no means as startling as it would be were the secrets of the tomb exposed.

Out of the mist of uncertainty which envelops the discussion of this embarrassing subject, a few sufficiently established truths stand prominent.

Among these may be mentioned—

1st. That there are several distinct forms and species as well as various complications of ovarian disease, which differ in their course and termination, and do not admit of similar modes of treatment.

2d. That the diagnosis of these different forms and complications is often extremely difficult, if not at times impossible.

3d. That patients have recovered spontaneously from undoubted ovarian disease.

4th. That notwithstanding its frequently exhausting tendencies, patients affected with unequivocal ovarian disease have lived in tolerable comfort many years without treatment, and that others have survived a considerable number of years under palliative tapping and other comparatively mild remedial measures.

5th. That a certain number of cases of ovarian disease have been permanently relieved by tapping alone, and a much larger number have been cured by tapping followed by injections, especially of tincture of iodine; but that others have remained uncured and many have died from tapping, as also from tapping and injections.

6th. That in 300 trials the operation for extirpation *seems*<sup>1</sup> to have succeeded in at least 179 instances, but that it could not be completed in 88 of these cases, and that it has been followed by death in 120 of them; and finally, that, whether completed or not, it is one of the most dangerous operations in the practice of surgery.

Beyond these generalities there is little that is not still in doubt, so far as practical inferences are concerned. If we may judge from the assertion of high authorities, palliative tapping is the operation which has been most frequently resorted to, and is regarded as the least frequently fatal. In the recent discussion at the French Academy, M. Moreau stated that he had seen it tried without injury over a hundred and fifty times; Jobert was said to have performed it safely at least twenty-five times, and Velpeau announced that he had practised it, or seen it practised, perhaps two hundred times without serious result, that he then met with three fatal cases in succession, but had subsequently had ten cases in which no mischief was produced.

<sup>1</sup> The permanent recoveries are necessarily uncertain in many instances, because the subsequent history of the patient is not sufficiently complete.

With regard to the standing of ovariectomy as an accepted operation among professional men at large, we are surprised to find Dr. Lyman assuring his readers that "in spite of the high surgical authorities arrayed against ovariectomy, it cannot be doubted that the operation for entire extirpation is looked upon with increasing favour by large numbers of the profession." (p. 27.)

We do not pretend to dispute the fact, except so far as our own immediate vicinity is concerned, although we should be sorry to believe that the operation is really gaining substantial ground in any professional community. Dr. Duncan shows that, practically, its status among British surgeons is not advancing, in spite of a few special champions. The recent discussions in the French Academy have shown that among the Parisian authorities it is most unequivocally condemned. In Philadelphia we believe it has few partisans, and although opportunities are of course not wanting, it has had, except perhaps in one or two solitary instances, but one performer. Attention has been already called in another periodical to the significant fact that of the three hundred cases collected by Dr. Lyman, 105 occurred in the practice of three operators—two British and one American—one-third of all the cases on record! E. H.

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ART. XVIII.—*Medical Notes and Reflections*. By Sir HENRY HOLLAND, Bart., M. D., F. R. S., etc. etc., Fellow of the Royal College of Physicians, Physician in ordinary to the Queen, and Physician in ordinary to his Royal Highness, Prince Albert. From the third London edition. Philadelphia: Blanchard & Lea, 1857. 8vo. pp. 493.

It is pleasant to take up a medical work which is neither a text-book nor a monograph; a work not written to oppose any generally received doctrine, nor devoted to the defence of some particular theory. The pleasure is greatly enhanced when to these negative recommendations are added the positive attractions derived from the fact that the work is the production of a mind of the first order, enriched by thought, learning, and experience. Such a work is that entitled *Medical Notes and Reflections*, by Sir Henry Holland, first published nearly twenty years ago, and now republished, a second time in this country, from the third London edition. Distinguished as the author is as a ripe scholar, a profound thinker, a philosophical observer, and also by his high social and professional position, we should anticipate gratification and instruction from his writings. The notes and reflections of such a writer, selected from private records accumulated during twenty years, could hardly fail to prove interesting and valuable. That they have been so regarded, the repeated demand for new editions of the work is sufficient evidence. The call for a new edition at this time, in this country, is a sufficient proof of its intrinsic excellence. Taking into view the great changes in pathological and therapeutical views since the publication of the first edition, and also the multitude of new works which are almost daily issuing from the press, Dr. Holland must, we think, experience in a high degree the satisfaction of successful authorship, from the desire of his transatlantic brethren for a new American edition of *Notes and Reflections* prepared for publication so many years ago. How few of the medical works coeval with this, are now deemed valuable, except as belonging to post literature!

As now constituted, the work has undergone some important alterations. Certain portions have been detached and embodied in another volume, under the title of *Chapters on Mental Physiology*. To supply the vacuum thus left, a few chapters have been added, taken from papers which the author had originally designed for a second volume of this work.

The work embraces notes and reflections on a great number and diversity of subjects. The first chapter, on "Medical Evidence," is one of the best in the series. The practitioner will find in this chapter much food for meditation. The critic finds occasion to complain only of its brevity. The succeeding chap-

ters relate to topics having no connection with each other, save that each and all bear directly and jointly on the philosophy and practice of medicine. Among these topics are the following: "On Hereditary Disease," "Method of Inquiry as to Contagion," "On Diseases occurring but once in Life," "On the Influence of Weather in Relation to Disease," "On the Medical Treatment of Old Age," "On Pain as a Symptom of Disease," "On the Exercise of Respiration," etc. Then follow a series of chapters relating more directly to therapeutics, viz: "On the Abuse of Purgative Medicines," "On Bleeding in Affections of the Brain," "On the Use of Emetics." Diluents, sudorific medicines, opiates, mercurial medicines, digitalis, and the preparations of antimony, are treated of generally in separate chapters. We have enumerated a part only of the topics which, collectively, occupy thirty chapters. The concluding chapter is devoted to a discussion of the hypothesis of animalcular life as a cause of disease. By no one has this hypothesis been so elaborately and ably discussed as by Dr. Holland in this work. The reader cannot but be impressed with the ingenious and cogent arguments adduced in its support. The existing state of medical science, as regards positive knowledge of the exterior causes involved in the diffusion of epidemic diseases, cannot, perhaps, be better exemplified than by the fact that the hypothesis of animalcular or that of the cryptogamous origin of these diseases, as advocated by Prof. I. R. Mitchell, fanciful as both hypotheses must be considered, are yet rendered extremely plausible, and cannot be shown to be irreconcilable with known facts of etiology.

A critical notice of Dr. Holland's work, from the number and variety of the topics discussed, would require a long article. An analytical revisal at this time, does not seem to be called for. Its merits are sufficiently established. In addition to a cordial commendation to those of our brethren who are not already familiar with its merits, we have aimed only to give, in a few words, a general idea of its scope and character.

A. F.

ART. XIX.—*Archiv für Ophthalmologie, herausgegeben, von Prof. F. ARLT in Prag; Prof. F. C. DONDERS in Utrecht; und Dr. A. VON GRÆFE in Berlin.* Zweiter Band. Abtheilungen I. und II. Berlin, 1855-6.

*Archives of Ophthalmology.* Edited by Profs. ARLT of Prague, DONDERS of Utrecht, and Dr. A. v. GRÆFE of Berlin. Vol. II. Parts I. and II. Berlin, 1855-6.

THE volumes before us pertain to a class of publications in which the Germans so particularly excel—serials devoted to the record of special branches of science. The work under consideration appears as a yearly compilation of all that is new in ophthalmic surgery, and contains, moreover, many valuable original communications from the pens of the editors, Professors Arlt of Prague, Donders of Utrecht, and Dr. A. von Græfe of Berlin.

This last named writer, it will be remembered by our readers, is the son of one whose name has been rendered ever illustrious by his contributions to the science of surgery; and the younger v. Græfe now bids fair to acquire, in time, a reputation not inferior to that of his talented predecessor. His private ophthalmic clinic is already one of the largest in Europe, and the pages from his pen in the work before us, bear ample testimony to the manner in which his opportunities have been improved. Fifteen articles, in all one hundred and twenty pages, constitute the quota of Dr. Græfe's contributions for the year 1855, and in the volume for 1856, we discover not less than one hundred and fifty pages from his pen.

It is impossible for us, in our limited space, to do more than draw attention to these volumes, but yet we cannot refrain from noticing, in passing, the details of one or two cases, which strike us as especially interesting. At p. 259, we find reported, at length, an account of the development of the cysticercus cellulosæ in the human eye.

The first of these cases occurred in the person of a woman aged 58, whose

general health was good, and who had never suffered from the presence of teniæ. About eight weeks prior to the date of the report, she complained of a deep-seated continuous sensation of pressure in the right eye. Vision gradually failed, and finally complete amaurosis supervened. Examination of the eye by means of the ophthalmoscope, resulted in the detection of the existence of a cysticercus sac, developed in the posterior and inner portion of the bulb. The arterial vessels of the retina could directly be seen passing upon and over the tumour, and again returning to the retina. This latter circumstance, in the opinion of Dr. v. Græfe, would lead to the belief, that the hydatid was developed either in the substance of the retina, or else between it and the choroid tunic. A similar case had previously occurred under his observation, which had terminated in atrophy and destruction of the bulb (phthisis bulbi).

The second case alluded to, is one in which a similar growth was developed in the vitreous humour of a boy 10 years of age. The hydatid sac, in this instance, rested in the long axis of the ball—the base presenting backwards, and was of a light-bluish green hue. The child was able to read large print with difficulty.

We find, also, in the volume for 1856, two similar cases recorded. In one, a servant girl, æt. 25, the sac undoubtedly sprung from the retina, the arterial layer of which could be plainly seen to pass behind it. In the other instance, the tumour rested beneath the retina, that is, between it and the choroid. In relation to this case, Dr. v. Græfe tells us that, in reality the growth might be said to rest between the retina and the sclerotic, since a complete local atrophy of the choroid coat had taken place in the vicinity of the tumour. The margins of the atrophic portion were jagged and irregular, and the neighbouring pigmentary corpuscles were pathological in their character.

The above mentioned cases, together with one reported in a previous number of the same journal, by Dr. Liebreich, are, we believe, the only authenticated instances of the occurrence of the cysticercus in the deep-seated portions of the eyeball. The presence of the parasite has been frequently noticed in the anterior chamber of the eye, but not until the application of the ophthalmoscope as a means of diagnosis, has its existence been demonstrated posterior to the iris.

At page 273, we find a most minute and elaborate record of the examination of the eyes of a patient upon whom the operation of reclinacion had been performed some four or five years previously. In this instance, as often, we had almost said always, happens, amaurosis eventually followed the operation. The death of the man resulted from an accidental wound, and the autopsy presented many interesting facts concerning the state of the lens, capsule, and vitreous humour. Both eyes had been subjected to operation, and one of these had since become perfectly amaurotic. Dissection of this eye revealed the presence of a secondary cataract, the remaining capsule of the lens. The anterior portion of this membrane was perfect and unbroken throughout its entire surface, presenting none of those folds or cicatrized bands, indicative always of a previous solution of continuity of this tissue. The posterior portion of the capsule presented, however, an elliptical opening, through which the lens had escaped. This latter body had been made to describe an arc of almost 180°, and rested in the inferior portion of the ball, pressing upon the retina, immediately behind the ciliary processes. Its anterior surface presented upwards and somewhat backwards.

The track made by the lens in its passage through the vitreous humor was clearly perceptible, and appeared to be bounded by a fine whitish, discoloured membrane; the whole forming, as it were, a pocket leading to the displaced crystalline body.

The vessels of the retina appeared much congested, and opaque grayish points of effused lymph were visible upon its surface, apparently the result of chronic inflammation. The choroidea and ciliary processes also presented the same appearance of inflammation and effused lymph; but here the lymph appeared to have undergone an almost complete *calcification*, reacting as carbonate of lime under the application of acids. The iris was normal.

In the other eye, a portion of the displaced lens had arisen so as to resume

its original position immediately behind the pupil, and both anterior and posterior capsules were somewhat lacerated. The position occupied by the lens subsequent to the operation could be discerned, a species of false membrane, as in the other eye, marking its original bed.

In the volume for 1856, we observe a carefully written article, of nearly twenty pages, from the pen of Müller, relative to the structure of the cornea and the choroid coat, and the pathology of their senile degenerations. A chapter devoted to the subject of amaurosis and fatty degeneration of the retina as concomitants of Bright's disease, also deserves especial attention; indeed, as we turn over the leaves of the periodical before us, we cannot help being struck with the value of the original articles here presented, bearing as they all do, evidence of the industry and zeal which, at the present day, characterize the researches of the German ophthalmologists. J. H. B.

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ART. XX.—*Historical Sketches of Quarantine. An Address delivered before the Philadelphia County Medical Society, January 28th, 1857, agreeably to a provision of the Constitution*, by WILSON JEWELL, M. D., on the close of his official term as President. Published by order of the Society. 8vo. pp. 32.

THE subject of this address, especially so much of it as relates to the early history of the quarantine regulations adopted for the protection of our own metropolis from the introduction of disease from without, is one unquestionably of no trifling interest.

Had the author been able to carry out his historical sketch, so as to present the result of quarantine as a safeguard against the admission of disease into each locality, accordingly as it has been more or less strictly enforced, he would have presented us with the materials for the solution of the leading and most important question bearing upon the subject of quarantine. Has it been, upon the whole, productive of an amount of good in any degree commensurate with the expense required for its proper enforcement, the loss resulting from its interference with commerce, and the detention and discomfort it entails upon the crews and passengers of a vessel, or the travellers upon our steamboats and railroads who are subjected to its restrictions?

We make no complaint because Dr. Jewell has not furnished the materials referred to. Their collection would be, indeed, an almost hopeless task. If we investigate with the closest scrutiny the medical annals of the countries where a system of quarantine has the longest prevailed, and been carried into force the most rigorously, we shall be disappointed by the paucity of facts that are presented necessary to the formation of any correct conclusion as to its prophylactic operation, or else perplexed with the looseness and contradictory character of the statements which are given in lieu of facts.

It is only of late years that the evidence in elucidation of the true value of a system of quarantine has been carefully collected, and investigated with that thoroughness, strictness, and fairness which the importance of the question, and the magnitude of the interests involved, demand.

The result of this investigation—of facts established beyond the possibility of doubt, and arranged in their true logical relationship—has been a growing distrust of the efficacy of quarantine as a means of preventing the introduction of disease into a community.

It is unquestionably true that the strictest system of quarantine is entirely inefficient in preventing the occurrence of those maladies which are of a strictly endemic or epidemic origin, such as the various malarial diseases, typhoid fever, cholera, yellow fever, etc.; such as can be shown to arise and spread throughout certain localities, or over large districts of country altogether independent of contagion. It is not so, however, in respect to diseases of an unquestionably contagious character, such as smallpox, for example.

Against the introduction of these, a quarantine of infected persons, vessels, clothing, etc., affords an effectual safeguard.

The question then arises, Is it proper to dispense entirely with all quarantine restrictions, excepting in respect to vessels among the crews of which smallpox or other known contagious malady prevails, or has recently prevailed? To this question we unhesitatingly reply in the negative. We are fully persuaded—our own observations have convinced us—of the danger of allowing a vessel with a filthy hold, a damaged cargo, a diseased crew, and a number of squalid passengers to come up at once to the wharves of a city, land her crew and passengers, and discharge her cargo, more especially if she has arrived direct from a sickly port, and the season is hot, close, and damp. We should anticipate the danger at least, that disease would be induced in those who may be forced to breathe the foul air of her hold, as well as in the localities at which her cargo is discharged and stored, and among the populations of the unhealthy locations in which her crew and passengers are most likely to crowd immediately after coming from on shipboard.

We believe it to be a judicious and necessary precaution to detain all vessels arriving during the hot season of the year, which, upon inspection, shall be found to be in a foul condition, at a reasonable distance from the city, and to prevent intercourse with them until they are thoroughly cleansed and purified; their crews and passengers being placed in comfortable quarters, until their clothing and baggage can be washed and aired, and such portions of their cargoes as would endanger the production of disease, if introduced in the midst of a populous city, destroyed or purified.

It may be said that we have conceded all that the most strenuous advocates of quarantine insist on. Such is by no means the case. We object to the quarantining of any vessel merely because it has arrived from a particular port, at a certain season of the year, whatever may be the condition of its hold, crew, and passengers, for a definite number of days, without discharging its cargo, and either allowing the crew and passengers to remain on board, at the risk of generating disease, if it do not already prevail among them, or removing them from on board to crowd them together in illy constructed and uncomfortable apartments. Now, this is certainly a very different thing from detaining under quarantine only foul vessels with damaged cargoes and sickly crews and passengers, just so long as may be necessary to purify the first, to remove the second, and to improve the hygienic condition of the last.

We can conceive of no objections to the free admission of individuals from on board vessels who are labouring under yellow fever, cholera, typhoid fever, etc., if they can be properly attended to in comfortable dwellings, or in our public hospitals. We have seen many such taken directly from on board of ships just arrived from infected ports, and treated at their own homes or in the wards of an hospital, but never witnessed the communication of disease to those in attendance upon them, or to such as visited them. Even the entire crew, though sickly, or a ship load of diseased and squalid passengers, might, with entire safety, be admitted into the midst of a city, could they at once be dispersed, and placed, individually, under favourable hygienic influences. But a foul vessel, with a damaged cargo, and the foul clothes and baggage of the crew and passengers, can never, especially during the prevalence of hot, close, and damp weather, be safely permitted to come up and unload at the wharves of the city. It is a matter of indifference whether such a vessel has arrived from a healthy or unhealthy port. We hold that, under all circumstances, a quarantine of vessel and cargo is of far greater importance than a quarantine of crews and passengers, whatever may be their condition as to health—provided, always, they are not labouring under an unquestionably contagious disease.

A judiciously devised, and correctly and faithfully executed system of quarantine regulations in respect to vessels, including their cargoes, crews, and passengers, is, in our estimation, essential to the safety of every commercial community. As to the general plan and the special details of such a system it is not our purpose at present to discuss them.

D. F. C.

ART. XXI.—*On the Constitutional Treatment of Female Diseases.* By EDWARD RIGBY, M. D., etc. etc., Fellow of the Royal College of Physicians; Senior Physician to the General Lying-in Hospital; Examiner in Midwifery at the University of London. 12mo. pp. 256. Philadelphia: Blanchard & Lea, 1857.

IN judging of the value of this little treatise of Dr. Rigby, its true character and purpose must be taken into consideration. It is not offered as a manual of the diseases of women, for the use of those who are preparing to enter the medical profession, but as a concise exposition of the constitutional treatise of the leading ailments of the female sex, addressed to the profession at large.

The proneness exhibited on the part of physicians, within a few years past, to regard nearly every malady incident to women as the result of some displacement or disease of the uterus, or of some one or other of her reproductive organs, and the frequent, often serious, errors in diagnosis and treatment to which this has led, render the publication of the treatise before us particularly opportune. From the high standing, the experience, and the evident freedom from all undue bias of the author, it cannot fail, if carefully studied, to do much good.

The character of the work is strictly practical, and this, Dr. R. remarks, he has endeavoured throughout, as far as he could, to bear in view. "I have, therefore," he says in the preface, "devoted what may appear an unusual amount of consideration to the functional derangements, particularly those of menstruation, not only because they are affections of everyday occurrence, but because I am particularly anxious that their close connection with the general health and its various conditions, especially as regards the chylopoietic viscera, should be thoroughly understood; being convinced that on a right appreciation of this depends not only their correct diagnosis, but also the principles of their successful treatment."

"I have devoted separate chapters to the consideration of these subjects (amenorrhœa, dysmenorrhœa, etc.) solely in deference to a long established custom, which in former times was a necessity, when their nature and essential causes were imperfectly or erroneously understood, and which has been sanctioned by force of habit; but I feel assured that my readers will agree with me in the conviction that the time will come when these terms, as well as that of leucorrhœa, will no longer designate distinct affections, but will be classed with such symptoms as pain, rigors, expectoration, etc. Neither do I consider that organic disease of the female generative organs is to stand as an exception to the importance of constitutional treatment; for I look upon it, to use an admirable expression of Dr. Latham on pulmonary consumption, as 'no more than a *fragment* of constitutional malady.' The great additions which have been made to our pathological knowledge of late years, by means of microscopic and chemical research, fully warrant my application of the above expression to these diseases."

"It may be objected that I have been guilty of a serious omission in not devoting a special chapter to the consideration of *Metritis*, which forms such an extensive subject in the French works; but, in answer, I must confess that I have not seen inflammation of the womb in the unimpregnated state as a primary disease, although as an *effect* and *symptom* of other conditions it is common enough. And it has been my endeavour, whenever I have alluded to an inflammatory state of the uterus, to show that, in most cases, where the *cause* of it has been correctly ascertained and properly treated, this, like many other effects, will subside without trouble."

There is a great deal of sound sense and valuable practical views presented in every chapter of the treatise. It cannot be read by any one without instruction, and we would commend it earnestly to the notice of the American medical profession.

We regret that the author has not considered it advisable to comprehend in it all the diseases peculiar to the female sex. Those of which it treats constitute, however, the most prominent and important, as well as the most frequent that occur unconnected with the state of pregnancy.

D. F. C.

# QUARTERLY SUMMARY

## OF THE

### IMPROVEMENTS AND DISCOVERIES

#### IN THE

### MEDICAL SCIENCES.

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#### ANATOMY AND PHYSIOLOGY.

1. *Experiments upon the Supra-renal Capsules.* By M. BROWN-SEQUARD and others.—Dr. Addison's investigations into the diseased condition of the renal capsules have among other results had the effect of recalling attention to the functions of, and amount of importance to be attached to, these organs. As usual, in France these questions have been sought to be settled by multiplied vivisections; and already numerous communications detailing the results of experiments upon animals have been laid before the Academy of Sciences, the reports of such results being somewhat at variance with each other.

M. Gratiolet states that his experiments upon guinea-pigs go back to 1853-4, and the present discussions have induced him to publish the results. He found that when the left capsule alone was removed that neither death nor convulsions necessarily followed; but when the right and, *à fortiori*, when both were removed death always took place. He believes this arises from the anatomical relations of the right capsule with the liver and vena cava inferior, which render the operation as dangerous as it is difficult.

M. Phillipeaux reports that extirpation of both capsules in the albino rat does not necessarily cause death; for in four of these animals in whom he successfully extirpated both, no important functional disturbance resulted. He believes that when death has resulted it has done so from the operation itself, which is a severe one, and may be followed by fatal inflammation of the perineal cellular tissue, peritonitis, or intestinal hernia through the divided muscles.

In connection with this communication we may notice another made to the Academy by Dr. Martini, who relates the case of a man dying of phthisis at the Hospital for Incurables at Naples. The two kidneys, instead of occupying their normal position, were found fused into a single body, lying on the promontory of the sacrum. This body received a single emulgent artery, which divided into four branches, having corresponding veins also uniting into a single emulgent vein. Two very short ureters of the usual calibre proceeded to the bladder. The structure of the kidney was normal. Not a trace of renal capsules could be discovered, although, as the author was aware of Addison's researches, he made careful search for them.

M. Brown-Séquard's communication, since expanded by him, enters into minute detail. After taking a review of the state of science in regard to these bodies prior to Addison's researches, he details the results of his experiments. All the animals in which he has extirpated, crushed, or even pricked at several points both capsules, have died soon after the operation. Of 51 rabbits in which the precise time of death was noted, the mean period of survival was found to be nine hours and some minutes; the minimum, five hours and a half, and the maximum (in 1 only), fourteen hours and a half. In dogs and adult

cats, the survival was somewhat longer, the mean period being fourteen hours, while in the guinea-pigs it was thirteen hours. He thinks the longer period of survival observed by Gratiolet was due to his employing young animals, in which the survival is longer; and in his own experiments he found that in very young cats and dogs its mean rose to thirty-seven hours. The mean period of survival in the 90 experiments performed on the various animals was seventeen hours and a half, the mean for adult animals being about twelve hours, for very young animals, thirty hours. When only one capsule is removed or injured the duration of life is somewhat longer, but, although death in this case is not inevitable, it is very frequent, inasmuch as only 2 out of 37 animals survived. The supposition of Gratiolet, that abstraction of the right capsule is always fatal, is not borne out by a more extended observation.

Having detailed these results, M. Brown-Séquard next proceeds to give a description and explanation of the phenomena produced:—

*Influence exerted on animal and organic life.*—1. There is a notable debility produced, differing from that merely due to the pain of the operation, which is temporary. It gradually increases, and becomes excessive as death approaches. 2. The respiration and circulation undergo important modifications. The respiration may be temporarily increased in frequency while the beats of the heart are diminished. At a somewhat more advanced period, the reverse of these conditions prevails; while, as the case proceeds, the frequency of both diminish. In the immense majority, the force of the heart's pulsations are notably diminished during the whole period of survival, and especially towards its latter part. 3. The appetite quite disappears; and, if the animal has eaten before, digestion is arrested, but there is rarely vomiting. 4. The urinary secretion remains normal. 5. The temperature generally becomes diminished, and especially in winter, when rabbits towards the end will lose 4° or 5° C. in a room at 10° or 12° C. 6. Sensibility persists to the last, and even seems exaggerated. 7. Delirium and convulsions are among the principal phenomena, the latter being sometimes very violent, and manifesting themselves either under the tetanic or epileptic form.

*Nature of the ensuing death.*—Death takes place sometimes from asphyxia, sometimes from syncope; and the asphyxia may take place either suddenly or gradually. Not unfrequently, some time before death, in place of convulsions, a turning movement is set up, or the animal rolls alternately to the left and right, as after certain lesions of the encephalon.

*Pigmentary matter and peculiar crystals found in the blood.*—The coexistence of the deposit of pigment in the skin and changes in the capsule in the human subject, gives much interest to the fact of the author having found a notable increase of the normal pigmentary matter in the blood of the animals operated upon. No increase of pigment has been found in the skin of these animals. Blood collected from animals who have undergone the ablations exhibits the rapid spontaneous formation of crystals. They are especially met with in the blood of the inferior vena cava, and differ in character from hæmatoidine.

*The cause of death.*—In this section the author passes various possible causes of death under review, such as traumatic peritonitis, hemorrhage, lesions of the liver or kidney, phlebitis; and comes to the conclusion, that this speedy death is not the result of any of these, or even their combination, and shows by numerous comparative experiments, that survival from these causes of death would be more prolonged. In like manner, though he believes that injury to the filaments coming from the semilunar ganglion may co-operate in producing the fatal results, these are not due to it alone; for great injury done to the portions of the sympathetic, whence the supply for the capsules is derived, is followed by a longer survival than in the case in question. As death cannot be explained by any of these causes, we arrive, by exclusion, at the ablation of the capsules, an inference rendered more probable by certain facts. When death follows the removal of only one capsule, the convulsions that ensue are generally stronger on one side, and the rolling movement, which is frequently observed, almost always commences on the opposite side. Not unfrequently, in rabbits, the pupil corresponding to the side on which the ablation has been made is more contracted than the other.

*The Pigmentary Disease in Rabbits.*—During the last twelve years M. Brown-Séquard has observed a very large number of rabbits die of a disease characterized by peculiar symptoms. For a long time he attributed its production to the presence of the ova of a species of helminthus, so constantly found in the liver of the Parisian rabbits, that he has never failed of finding them in 500 rabbits he has examined. The intensity of the disease seemed to be proportionate to the amount of destruction of the liver produced; while in the rabbits in America, in which these ova are not met with, the disease is also unknown. Still further observation has not always shown this coincidence between the state of the liver and the production of the disease; and the author's attention having been directed by Addison's researches to the condition of the renal capsules, he has found remarkable alterations in these bodies, some of which seem to be constant. The cortical substance, from a canary colour becomes of a chocolate colour, or of a more or less deep reddish brown, a *ramollissement* of the substance, and a dilatation of the capillaries being also observed. Such changes were observed in 26 out of 28 rabbits suffering from pigmentary disease. The symptoms observed have a marked resemblance with the phenomenon produced by the ablation of the capsules. In these animals there is accumulation of pigmentary matter in the blood. This, in the author's opinion, has induced irritation of the capsules, the function of which in the normal state consists in producing modifications in this pigmentary matter. The function of these glands being thus impeded, a still greater accumulation of pigmentary matter ensues, and death rapidly takes place in consequence, among other causes, of the obstacles which the pigmentary masses present to the free circulation of the blood in the capillaries of the nervous centres.

*Results of the Experiments and the Pigmentary Disease compared with Addison's Disease.*—M. Brown-Séquard believes that the facts published by Addison and Hutchinson receive powerful illustration from the above experimental and pathological observations. Among the symptoms observed in the human subject there are two that have always been found, an impairment of voluntary motion and a discoloration of some part of the skin. In animals the debility is very remarkable; and if their death is too rapid to allow of the pigment being deposited in the skin it is found in the blood. A disordered state of the nervous system and loss of appetite are other symptoms often common to all these categories of facts.

*Functions of the supra-renal capsules.*—Prior to Addison's observations, all that physiologists had established with regard to these bodies was, that they exerted a modifying power upon the blood, and differed from glands having ducts, inasmuch as they eliminated nothing. Addison's observations and the author's experiments lead to the conclusion that these organs are essential to life. Indeed they seem more so than do the kidneys themselves, survival being longer after ablation of the latter. It is extremely probable that one of the functions of the capsules consists in the special modification of an unknown matter capable of transformation into pigment, and that the modification exerted on this matter by the capsules prevents such transformation. This would not seem to be the only function they exercise, for the spontaneous production of crystals in the blood of animals deprived of the capsules, and the prompt disappearance of globules, shows the great alteration this fluid undergoes. Other experiments made by the author, and hereafter to be related, show that the blood of animals deprived of the capsules often acts as a fatal poison when injected into the veins of animals of the same species.—*Med. Times and Gaz.*, Jan. 10, 1857, from *Archives Gén. de Med.*, Oct. and Nov., 1856; *Comptes Rendus*, Tome XLIII., Nos. 8, 9, 19, and 22.

2. *Experimental Researches on Animal Heat.* By CL. BERNARD.—In order to ascertain the influence exercised on the temperature of the blood during its passage through the digestive apparatus, Bernard examined: *a*, the temperature of the abdominal aorta—*i. e.*, of the blood before its distribution to the digestive apparatus; *b*, of the portal vein—*i. e.*, of the blood after its passage through the intestinal canal, spleen, pancreas, &c., but before its entrance into the liver; *c*, of the hepatic veins—*i. e.*, after its passage through the liver and

the whole digestive apparatus. From these necessarily very delicate experiments, for the description of which we refer to the original, the author draws the following conclusions: 1. The heat of the blood is constantly increased by its passage through the digestive apparatus, in such a manner that it is warmer in the portal vein than in the abdominal aorta, and still more so in the hepatic; the process of digestion exercising apparently no influence over this phenomenon. 2. The blood of the hepatic veins is a constant source of calorification for the blood conveyed through the inferior cava to the heart. This may be considered even as the principal source, for nowhere else is the blood found so warm as in the hepatic veins, where it raises the thermometer in vigorous dogs even to  $106^{\circ}.88$  Fahr. 3. Among the organs which contribute to the augmentation of the temperature of the blood in its passage through the digestive apparatus, the liver maintains the highest rank. This organ must therefore be regarded as one of the principal sources of animal heat.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *L'Union Médicale*, No. 108, 1856.

3. *Accommodation of the Eye*.—HELMHOLTZ has examined by an ingenious apparatus various phenomena connected with the process of accommodation. No alteration is to be observed in the curvature of the cornea during the accommodation for different distances; the iris becomes more prominent by the accommodation to near objects; the radius of the curvation of the anterior surface of the crystalline lens is, during accommodation for near objects = 8.6 millimètres; for remote objects = 11.9 millimètres. During the accommodation for near objects, also, the radius of the curvation of the posterior surface appears to become diminished; while, therefore, the lens becomes more curved on both sides, the posterior vertex remains in its place, while the anterior advances considerably. The lenses of dead bodies have the shape of those adjusted for near objects; they are in general even thicker than those. Helmholtz is therefore of opinion that this is the form of the lens in its state of equilibrium. Regarding the influence exercised by the iris in this alteration of shape and position of the lens, Helmholtz maintains a similar view to that of Cramer.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *Graefe's Archiv.*, vol. i., 1855.

4. *Secretion of Bile*.—KOLLIKER and MÜLLER ("Second Report of the Physiological Institution of Würzburg) present some valuable additions to our knowledge of the secretion of bile. The inferences are drawn from experiments performed on dogs. 1. As regards the influence of meals, a considerable increase was found from the third hour—the greatest amount, in general, between the sixth and eighth hour, the lowest between the nineteenth and twenty-fifth hour after moderate meals, while the increase continued for sixteen or seventeen hours after large meals. It will be remembered that Arnold found the quantity of bile largest soon after meals, decreasing again after the fourth hour. 2. The quantity of bile secreted per one kilogramme of dog in twenty-four hours, is estimated at 36.1 grammes, with 1.162 grammes of solid residue; which nearly agree with the observations of Bidder and Schmidt, while the figures are higher than those given by Nasse<sup>1</sup> and Arnold. 3. Of physiological as well as pathological interest are the researches made on dogs, after the closure of the external fistula; cases, therefore, in which, as the ductus choledochus had been previously obliterated, *artificial icterus* had been produced. The first signs of the icterus were observed in the urine, and not till several days later it appeared in the conjunctiva and mucous membrane of the mouth. In spite of the most intense icterus, one of the animals remained for several months very lively, and gained weight; sudden death ensued, however, in the midst of apparent health. The examination exhibited the signs of peritonitis, and a perforated ulcer of the duodenum. It follows that the mere retention of bile does not appear to exercise so injurious an influence on digestion and nutrition, and on the nervous system, as is generally assumed. 4. Amongst the *post-mortem phenomena* of dogs affected with biliary fistula, our attention is particularly arrested by the comparative frequency of perforating ulcers of the duodenum, and of incrusta-

<sup>1</sup> Commentatio de Bilis quotidie a Cane secreta copia et indole. Marburgi, 1851.

tion (ossification) of the branches of the coeliac axis and the mesenteric artery. Two of the five dogs experimented upon died of these perforating ulcers; a third of them manifested the signs of gastro-intestinal catarrh. The incrustation of the arteries was discovered likewise in two out of the five dogs, and has not been looked for in the remaining three. These pathological alterations, which had been formed without obvious symptoms during life, must make us careful in asserting that the bile may be drawn off without material injury to the constitution; the more so, as all the dogs experimented upon, as well by the authors as also by Schwann,<sup>1</sup> Nasse, and Arnold, died more or less suddenly, although they had been well provided with food. Regarding the etiology of the incrustation of the arteries, we must wait for further observations; we have already other pathological facts before us which make it probable that diseased states of the bile-conducting apparatus are apt to cause this morbid condition of the bloodvessels of the intestines.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *Verhandl. d. Würzb. Gesellsch.*, vi. 3, 1856.

5. *Membrana Pupillaris*.—Dr. WEBB exhibited to the Norwich Pathological Society the following specimens:—

1. An injected specimen from human foetus of five months, of a posterior view of the entire membrana pupillaris, *in situ*, with the lens removed.

2. A vertical section of the corresponding eye, showing the looped vessels of the membrana pupillaris passing to it over the anterior margin of iris.

3. Detached capsule of the lens, with vessels spreading from pole to pole of the lens, in connection with another preparation of the same eye, verifying the commonly received opinion of the existence of this membrane as a distinct structure closing the pupillary aperture.

These preparations were presented in consequence of Professor Quekett having unsettled the question as to the true character of this part, and to negative the assertion advanced in his *Histological Lectures* (vol. i. page 131), "that at one stage of development of the lens, the whole capsule is covered with vessels; and if it should so happen, in the course of the dissection, that the anterior layer be detached from the posterior, the anterior layer would be described as the membrana pupillaris; but if the lens come away entirely covered with vessels, no such membrane is found."—*British Medical Journal*, Feb. 21, 1857.

## MATERIA MEDICA AND PHARMACY.

6. *On the Vapour of Amylene*.—Dr. SNOW read before the Medical Society of London (Jan. 10, 1857), a paper on this subject.

He said that amylene was first discovered and described, in 1844, by M. Balard, Professor of Chemistry at the Faculty of Science of Paris. It was made by distilling fusel oil with chloride of zinc. M. Auguste Cahours had given the name of amylene five years previously to a product which was isomeric with it, and was made nearly in the same manner, but was now termed paramylene. Amylene itself was a colourless and very mobile liquid of extremely low specific gravity. M. Ballard had not stated the specific gravity; but he (Dr. Snow) had found it to be 0.659 at 56°. It was very volatile, boiling at 102° Fahr., and the specific gravity of its vapour was 2.45. It was a compound of ten atoms carbon and ten hydrogen, and it bore the same relation to fusel oil, or amylic alcohol, that olefiant gas, or ethylene, bore to common alcohol. It burnt with a brilliant white flame. It was soluble in alcohol and ether in all proportions, but was very sparingly soluble in water. As far as he could ascertain, it required rather more than 10,000 parts of water for its solution. It had an odour somewhat resembling naphtha; some persons thought the odour agreeable, and some thought it unpleasant; the odour was not so strong or permanent as that of sulphuric ether, and it

<sup>1</sup> Müller's Archiv. 1844.

did not remain long in the patient's breath. The vapour of amylene was much less pungent than those of ether and chloroform, and, therefore, it was much easier to breathe, and had not caused coughing, except a little in two patients with catarrh. He was not aware of the existence of amylene till a few months ago, or he would have tried it sooner; for, judging from experiments which he had made on analogous substances, there could be no doubt of its causing insensibility when inhaled; but he could not tell, without trial, whether it might not be too powerful, otherwise objectionable, in its action. He made several experiments on small animals with amylene, and after inhaling small quantities of it himself, he administered it in King's College Hospital, commencing with cases of tooth-drawing, on Nov. 10, 1856, and he had more recently given it in the larger surgical operations. He found, from experiments on animals, that to induce a very complete state of coma, which he called the fourth degree of narcotism, it required that a fifth part as much amylene should be absorbed as the blood was capable of dissolving. To cause the second degree, or that state in which consciousness and volition were disordered, but not abolished, it required a tenth part as much as the blood would dissolve; whilst to induce the third degree of narcotism, which was as far as he had found it necessary to carry the effect in the human subject, it required an intermediate quantity, or about fifteen per cent. In the case of chloroform, ether, and several allied substances, the proportion which required to be absorbed was far less, being only, for the fourth degree of narcotism, about one-twenty-eighth part as much as the blood was capable of dissolving. Benzin, which was a simple carbon-hydrogen, like amylene, was intermediate between this and the above substance in the relative amount of it which was absorbed, one-seventeenth part as much as the blood would dissolve being required to induce the fourth degree of narcotism. Whilst the relative amount of amylene absorbed was high, the actual amount was extremely small, owing to its very sparing solubility in the serum of the blood and other watery fluids. He calculated that in the adult human subject the amount of amylene circulating in the system, in the third degree of narcotism, was less than three minims. Viewed in the light of the small quantity which required to be absorbed to cause insensibility, amylene was a very powerful agent: but when considered in relation to the quantity which was consumed during inhalation, in the usual way, it was very far from being powerful. This arose from the great tension and the small solubility of the vapour, in consequence of which it was, with the exception of a small fraction, expelled from the lungs again without being absorbed. It took from three to four drachms of amylene to cause insensibility in the adult, whilst less than a drachm of chloroform was usually sufficient. The quantity of sulphuric ether required to cause insensibility in the adult was eight to ten fluidrachms, one-half of which was absorbed into the blood. In a protracted operation, the quantity of amylene used was greater than that of sulphuric ether, as the small quantity of the former which was absorbed was quickly exhaled again from the lungs, and required to be constantly replaced, whilst the large amount of sulphuric ether, when once absorbed, took a much longer time to evaporate in the breath. It was necessary for the patient to breathe air containing not less than fifteen per cent. of vapour of amylene, in order to reach the third degree of narcotism, or that condition in which consciousness and voluntary motion are entirely suspended, the pupils being usually contracted and turned upwards, but the muscular system not necessarily relaxed. The patient must inhale the amylene at the rate of rather more than a fluidrachm a minute; in this way he becomes insensible in three minutes, or rather less; but if the vapour was not inhaled in a sufficient volume, he would not become insensible by continuing the inhalation, for however long a time; the quantity of vapour must be increased, or it would not succeed. He had administered the amylene in his ordinary chloroform inhaler, which he had, however, got somewhat enlarged. In the use of amylene, absence of pain had been obtained with less profound coma than usually accompanied the employment of chloroform and ether. There were some cases, indeed, in which the minor parts of an operation, under these latter agents, might be performed without pain, whilst the patient was in a semi-conscious state, or even altogether

conscious; but they formed the exception; whilst in the use of amylene, the patient had very often been partially conscious during the operation. In a case that day, in which Mr. Fergusson removed a large melanotic tumour from the groin, the man repeated some verses very accurately whilst the arteries were tied, and was awake and talking to the bystanders whilst the wound was being stitched up, but felt nothing of it. The pulse was increased in frequency and force, during the inhalation of amylene, to a greater extent than happened with chloroform; the respiration also was very often accelerated, about as often as in the inhalation of ether, and more frequently than with chloroform. There had not been much increase of saliva from the use of amylene, and he (Dr. Snow) had not yet met with the profuse flow of saliva which was often troublesome in the employment of chloroform and ether. There had been no sickness in any of the twenty-one operations in which he had exhibited the amylene, nor any of the depression which so often preceded and accompanied the sickness from chloroform and ether; and there had been hardly any struggling or rigidity in any of the patients, although several of them being robust men, a good deal of both might have been expected before complete insensibility, if chloroform had been the agent employed. He was of opinion that amylene would be perfectly safe with careful management. Sulphuric ether seemed to be perfectly safe in whatever way it was used; although it had been blamed for causing death, no fatal accident seemed to have been really occasioned by it. This arose from the circumstance that the dose of ether occupied so much space in the form of vapour, that it could not enter the system except by degrees, and its effects were necessarily produced gradually. In regard to chloroform, however, even a fatal dose occupied but a very small space in the form of vapour, and unless great care was taken to have it largely diluted with air, it might act with dangerous rapidity, and the point of safety might easily be overstepped. The quantity of amylene which required to be inhaled, occupied, in the form of vapour, a volume intermediate between that of the vapour of chloroform and that of ether, and in all the ordinary methods of inhalation it must become mixed with a large portion of air. The relative advantages of amylene might be summed up as follows: In regard to its odour, it was more objectionable than chloroform, but much less so than sulphuric ether. In the amount which sufficed to induce insensibility, it was also intermediate between these two agents. In regard to its pungency, it had a great advantage over both ether and chloroform, being much less pungent than either of them; on this account the patient could always begin to inhale the amylene of full strength within half a minute, and the operation might generally be commenced within three minutes. It had an advantage in preventing pain, with a less deep stupor than was occasioned by the other agents, and in the ready waking and recovery of the patient, it had an advantage over chloroform, and a still greater advantage over ether. The almost entire absence of struggling and rigidity in the use of amylene is another advantage it possesses; and the greatest advantage of all, if it should continue to be met with, is the absence of sickness from its use.

Dr. RICHARDSON had seen three cases in which amylene had been administered by Dr. Snow. He thought the stages of narcotism were not so well marked in these cases as in those in which chloroform was administered. In the first case, the man became insensible to pain in three minutes and a half; in the second case, a child, in two minutes; and in the third case, a man, in one minute fifty seconds. The man's pulse was 134, and the respirations 60, in the minute. The most remarkable feature in these cases was, the perfect quietude of the patient. Amylene, in its effects, was most allied to the common coal-gas. Mr. Nunneley had tried this agent, and would have persevered in its use had it not been so offensive in its odour, etc. Dr. Snow's patients had recovered from the effects of the amylene very rapidly. Neither of them appeared to be quite unconscious, though perfectly insensible to pain. He (Dr. Richardson) considered the simplicity of the compound—a hydro-carbonate—in favour of its employment. It had struck him that the extreme cold produced by the evaporation of amylene would render it a most useful means of producing local anæsthesia.—*Lancet*, Jan. 17, 1857.

At a subsequent meeting of the Society, Dr. Snow showed a specimen of amylene which had a less powerful and more agreeable odour than that which he showed to the Society on a former occasion. He said that the change had been produced by great care in its preparation on the part of Mr. Bullock, and that the chief obstacle to the use of this agent was in a great measure removed; and he expected that the odour would be still less, when the amylene could be procured in a state of more absolute purity. He had given the amylene in 69 operations, and in one case of labour since he read the paper on Jan. 10th, making a total of 91 cases. The results confirmed what he had stated on the former occasion, as to certain advantages it possessed over chloroform in a number of instances. A little vomiting had occurred in six of the cases; this was much less than would be met with from chloroform, more especially as many of the patients had taken a meal just before the operation.—*Ibid.*, March 7, 1857.

7. *Cyanosis of the Blood by Chloroform.*—M. CHASSAIGNAC, surgeon to the Hôpital Lariboisière, states that he has often remarked, “in performing operations, and principally amputations of the leg and thigh, upon patients under the influence of chloroform, that the blood jet coming from the arteries presented, in place of its bright scarlet colour, a deep dusky tinge, almost like to that of venous blood. This colour proved evidently that the blood had not undergone in the lungs a sufficient revivification or oxygenation, and that there was from that time a commencement of asphyxia. But this does not only exist in cases where the method of administration of chloroform is defective, but it is positively established in those cases where all precautions had been taken to avoid asphyxia. It has been necessary, then, for us to conclude, from the above, that, even with an inhalation very well performed, the blood of patients submitted to the action of chloroform does not undergo, to the normal extent, the changes in consequence of which the blood becomes arterial from venous.

“In looking at this more closely, we have seen that this effect, called by us, improperly, perhaps, ‘cyanosis of the blood,’ was observed, at its highest degree during the period of collapse, to diminish afterwards in proportion as the respiration resumed its normal type. If, from motives that we have previously deduced, we might not have already considered the state of collapse as a serious condition during anæsthesia, this circumstance of the cyanosis of the blood attaining its maximum during the period of collapse would have been sufficient to fix our opinion on this subject. But that is not the point upon which we insist at this moment. That which we wish to prove is, that the inhalation of chloroform, at the time even when we practise it in a manner the most discreet and well managed, is accompanied always with a certain degree of incomplete asphyxia, attested by a change in the colour of the arterial blood, the alteration being much more pronounced during the collapse.

“There is an experiment that we have never made, but it would not be difficult to try it in certain operations. The experiment would consist in receiving, in graduated tubes, sufficient quantities of blood thrown out by the arteries, and collected at different periods of the anæsthesia. Unless we are much deceived we should find remarkable differences in the colour of the blood in different tubes.

“Hitherto this question has been too little studied for us to treat it more at length. We propose to ourselves to examine it more completely, but, provisionally, it has seemed to us that this circumstance of the cyanosis of the blood, even in slightly established degrees of anæsthesia, deserved to be pointed out to medical practitioners; and still more so the sensible increase of this cyanosis during collapse.”—*Lancet*, Feb. 21, 1857.

8. *Medicinal Properties of Iodoform.*—This body, discovered by Sénellas, presents itself in the solid form in the shape of glittering spangles, of a sulphur-yellow colour, friable, soft to the touch, of an aromatic persistent smell; it contains more than nine-tenths of its weight of iodine; its taste is sweet, and it has no corrosive property. Administered to dogs, it kills in a weaker dose than iodine, after having given rise to more or less marked depression, and rarely

to vomiting. To the depression succeeds a period of excitement, convulsions, contractions, &c. Iodoform is quite destitute of any local irritant action, and does not occasion the slightest vascularity of the mucous membrane of the stomach or of the intestine. The therapeutical properties of iodoform, according to MM. MORETIN and HUMBERT, are the following: 1. In consequence of the great quantity of iodine which it contains, it may be substituted for iodine, and the iodides in all the cases in which the latter agents are indicated. 2. The absorption of iodoform occurs with the greatest facility. 3. Iodoform, applied to therapeutics, possesses over other iodic medicines the advantage of not exciting any local irritation, or any of those symptoms which require the suspension of the latter preparations. 4. Besides the properties which are common to it with iodine, iodoform possesses special virtues: it calms the pain of certain neuralgic affections, and causes a kind of local and partial anæsthesia of the rectum when it is deposited in that part. 5. The doses to which it may be carried are 5, 10, 15, 25, 50 centigrammes *per diem*. 6. The principal diseases in which iodoform has been employed with advantage are, endemic goitre, scrofulous disease, rachitis, syphilis, certain affections of the neck of the bladder or of the prostate, and some kinds of neuralgia. It may also be used in phthisis, in those cases in which iodine is employed with advantage.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *L'Union Médicale*, Sept. 4, 1856.

9. *Effects of the Tincture of Iodine applied locally on the Mucous and Serous Membranes, in relation to Pus.*—Dr. BOINET remarks that the contact of tincture of iodine with the mucous membranes is not at all painful; and that it is possible to paint, almost without the consciousness of the patients, the pharyngeal and buccal mucous membranes, the tonsils, the neck of the uterus, the vagina, &c., without causing any pain: on condition, however, of not allowing the tincture to touch the orifices of the mucous cavities—namely, the points where the mucous membrane terminates and the skin commences; for the pain is very severe, and is prolonged for a considerable time, whether the tincture is applied to the lips, the anal orifice, or the female external parts of generation. In these cases the patients experience a pain as intense as when the tincture of iodine is applied to the skin denuded of its epithelium, or to a recent wound. There is the same pain when the ocular or palpebral conjunctiva is touched for the treatment of certain inflammations of the eye, the removal of granulations, &c. If several successive paintings take place, the same change ensues on the mucous membranes as on the skin—namely, that desquamation having taken place, the pain becomes then very severe after the subsequent application. As to the serous membranes, the tincture of iodine always produces in them very severe and cutting pains, and in an instantaneous manner. But this pain is much less severe upon the articular membranes than on the peritoneum. The acute pain produced by the contact of the tincture of iodine with the peritoneum is, in fact, a certain sign which indicates that an ascites has been mistaken for an ovarian dropsy; inasmuch as, in the latter affection, the iodine injection is never painful. The pain is also a proof, when it arises with less intensity in injecting an ovarian cyst, that a certain quantity has penetrated into the peritoneum.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *L'Union Médicale*, June 14, 1856.

10. *Endermic Application of Iodide of Glycerine.*—Dr. F. SZUKITS, after enumerating the several forms in which iodine has hitherto been endermically applied, proceeds to remark, that all the solvents in ordinary use take up only a small quantity, with the exception of alcohol. It was therefore desirable to discover a solvent which, without affecting the skin like the alcoholic tincture, should take up as large a quantity as possible of the iodine. This solvent was found, in 1854, by Cap, in glycerine. Cap attributed to glycerine the part of a simple solvent, and he proposed it, among others, for the solution of bromine, iodine, oxyde of lead, strychnia, veratria, atropia, morphia, &c. To Dr. Richter belongs the credit of having first introduced into practice the solution of iodine in glycerine. He combined the iodine with iodide of potassium in order to facilitate the solution of the former; combined with this, it may be dissolved

in any quantity up to the proportion of almost three to five. But in this concentrated state it is a caustic solution, and too strong for common endermic use; and the author has proposed a proportion of one part of iodine and five parts of glycerine, as a solution which may be applied for a long time to the parts about the neck and to the female breast, without any inconvenience except a slight burning. In the neck and the female breast, the application, after two or three paintings, causes smart burning; and after four or five it produces more or less large excoriations, which require the discontinuance of the remedy and the application of cold fomentations. On the abdomen and in other parts, these symptoms occur much later. After a longer application of the iodide of glycerine, the epidermis peels off on the painted parts. The paintings were performed once a day in the author's cases, and paper of gutta percha was laid over the painted places to prevent evaporation. The paintings may be continued for a month without producing *iodism*, and without causing the slightest disturbance in the well-being of the patient. According to the experiments of Bonnet, the absorption and elimination of iodine may take place to the amount of a gramme of iodine (15.4 grains) per diem for several weeks, without any injury to the general health. The number of cases in which Dr. Szukits has employed the iodide of glycerine were 24, in some of which the most satisfactory results were obtained.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *Wochenblatt der Gesells. der Aerzte zu Wien*. Sept. 1, 1856.

11. *Subcutaneous Application of Medicinal Substances.* By Prof. KURZAK.—The inoculation of medicinal substances is performed very little by practical physicians. In Germany, Professor Langenbeck has tried a method somewhat modified by himself in a great number of medicines. The results are very interesting in their practical bearings. He calls this process the "hypodermic subcutaneous method."

The purpose of this proceeding is twofold: first, to bring a medicine immediately to bear upon a particular organ or part of the body, and secondly, by this application, to induce a derivation or revulsion. The absorption of the inoculated matter is facilitated by the very act of inoculation. But there are a number of substances, such as those which cannot be introduced in a fluid or semi-fluid state, the absorption of which is difficult and tedious; and these are mixed by Langenbeck with some exciting vehicle—such as croton oil, or tartar emetic, or both together. In the *inoculation by needle*, the instrument must pierce deeper than in vaccination—namely, into the cellular tissue beneath the skin—and a much larger quantity of matter must be introduced. The inoculation-needle, therefore, presents a two-edged point, has the shape of a myrtle-leaf, deeply hollowed on one side in the form of a spoon. This two-edged point passes into a narrow, blunt stem or neck, which is so fastened by a hinge to a handle with double plates, that the needle can be pushed in like a lancet. The course of inoculation by needle is that the parts become more or less red, and the skin warmer and harder. When the tissues are normal, there is formed a *passage* of the length of the needle introduced, and which feels hard and stringy, and is generally closed when the absorption into the deep part is completed. If the needle has been sunk from one point in several directions, there are several such *passages* formed, which often combine to form a small cavity. If the openings of the passages lie close together, an ulcer is formed by their union; it is then only necessary to introduce the medicine to be inoculated into this cavity; the substance is taken up in a short time into the canals passing from the ulcer, and generally in from four to six hours it has entirely disappeared. In the *inoculation by plaster*, the medicinal substance is laid upon a small skin-wound by means of a little thread of charpie, and kept in its place by a piece of sticking-plaster. The operation of this mode of subcutaneous inoculation is not so intense as in the needle inoculation.

A great variety of substances are enumerated by Langenbeck as having been employed by him in subcutaneous inoculation; and those were especially selected which are soluble in the cellular tissue or in the parenchyma of organs. For instance, strychnia was inoculated near the vertebral column for weakness of the spinal cord and paralysis; veratria for various skin diseases, as lepra,

pityriasis, and scabies; quina for intermittent fever, inoculated into the breast or abdomen; digitalis for dropsy and palpitation, into the scrobiculus cordis; extract of squills as a diuretic, into the neighbourhood of the kidneys; cantharides, for incomplete paralysis of the lower extremities, into the lower part of the spine or the sacrum; cubeba and copaiba, for gonorrhœa, into the inguinal region, &c. &c.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *Wochenblatt der Zeitschrift der Gesellschaft der Aerzte zu Wien*, June 2, 1856.

12. *Dr. Simpson's Morphia Suppositories.*—Mr. SPENCER WELLS has introduced into use at the Samaritan Hospital, a form of morphia suppository, used with great advantage by Dr. Simpson of Edinburgh. Mr. Wells has found it a most convenient form of suppository after operations on the vagina, rectum, uterus, or perineum of women, both in hospital and private practice, and especially so after operations on the male genito-urinary organs, as lithotrity, in cases of retention of urine, irritable structure, &c., and after division of fistula in ano, or the removal of piles or prolapsed mucous membrane of the rectum by the ecraseur. They act much more efficiently than the soap and opium in common pill use as a suppository, and are seldom or never expelled from the rectum after their introduction above the sphincter. They are made extremely well by Messrs. Duncan and Flockhart, of Edinburgh, and supplied by them at a very reasonable rate, of various strengths. But as they are likely to come into more general use, we append the formula on which they are prepared. The following is for the half grain suppository: Take of acetate of morphia, 6 grains; sugar of milk, 1 drachm; simple cerate, half a drachm, or as much as may be sufficient to make a proper consistence, and divide the mass into twelve suppositories. Then dip each suppository into the following mixture, to form a coating: Take of white wax 1 part, lard plaster 2 parts; melt together. The best way is to insert a needle into the apex of the suppository, dip it into the melted wax and lard, and immediately afterwards into cold water to harden it before it loses its shape. The shape is conical, like a pastille. It is easily introduced by the finger, or more neatly by the ordinary ivory suppository syringe. Mr. Coulson has also used these suppositories lately in several lithotrity cases, and has found them of the greatest benefit in allaying the irritation which often attends the passage of the fragments of calculi through the urethra.—*Med. Times & Gaz.*, Feb. 7, 1857.

13. *Arsenic as a Caustic.*—In our preceding No. (p. 97) we had occasion to comment on the danger of the external application of arsenic. The following remarks, from a recent paper (*Med. Times and Gaz.*, Jan. 17th, 1857), by Prof. SIMPSON, strongly confirm the correctness of our caution.

"*Arsenic.*—The escharotic effects of arsenical preparations, when locally applied, were known to the ancients, and are alluded to by Dioscorides, Pliny, Celsus, and others. Arsenic is recommended, in the form of sulphuret, as a topical remedy in the cure of malignant and recurrent ulcers by various old Greek and Roman physicians, as Galen, Ætius, Scribonius, Largus, etc. In the 15th and 16th centuries it was employed by Fuchs, Valescus, Fernel, and others in the elimination of cancerous parts. They applied it in the form of white arsenic or arsenious acid, diluted and mixed with soot and various vegetable and other powders. In later times it has been used under the same form by many distinguished surgeons in the extirpation of cancerous ulcers and structures. It has formed the basis, also, of most of the secret topical remedies or caustics for the cure of cancers that have at different times been in vogue; as, for example, those of Müller, Martin, Von Campen, Chonet, Katzenbergen, Plunkett, Guy, etc. The form in which arsenic has chiefly been employed in later times as an escharotic is as arsenious acid; and the caustic powder or paste employed has usually consisted of a small percentage of this preparation, compounded and diluted with various other materials. The celebrated anti-cancerous caustics of Frère Côme, Rousselot, Justamond, Hellmünd, Heyfelder, Anthony Dubois, etc., severally consist of white arsenic, mixed up with cinnabar, dragon's blood, or the resin of the *Pterocarpus draco*, charcoal, etc., and made, before their application, into a paste or pomade with water,

saliva, mucilage, or white of egg. Dupuytren's arsenical powder consisted of from one to five or six parts of arsenious acid, mixed with a hundred parts of calomel. The caustic of M. Manec, which is extensively employed in France at the present day, is formed of one part of arsenious acid, seven or eight parts of cinnabar, and four parts of burnt sponge, formed into a paste with a few drops of water.

"One disadvantage connected with the topical use of arsenic as a caustic is the great amount and duration of local pain and irritation which it often produces. M. Lebert, who has had repeated occasion, as he tells us, to witness and watch the successful employment of Manec's arsenical paste by M. Manec himself, and who believes this caustic to be the best yet suggested, nevertheless states, that when used as an escharotic the immediate action of arsenic is 'one of the most painful means in surgery. Already,' says he, 'at the end of some hours violent pains commence in and all around the part, tumefaction at first, and subsequently an erysipelatous-like inflammation speedily succeed the pains, and it is only towards the end of five, six, or eight days that this general and extensive inflammation begins to diminish. During all this time,' he adds, 'the sufferings are sufficiently great to deprive some patients of all rest and sleep, and ten or fifteen days may elapse before these complications disappear.'—*Traité Pratique des Maladies Cancereuses*, page 646.

"But a still graver objection exists to the use of arsenic as a caustic, viz., the danger of its absorption into the system, and of its subsequent action as a poison upon the patient, particularly when, as an escharotic, it is applied either too frequently or too freely to a surface of any considerable extent. Besides, there is singular uncertainty in the effects of arsenic when thus locally applied. A patient of Professor Roux's was fatally poisoned by the application, for a single night, of an arsenical paste containing four per cent. only of arsenic, to a small mammary ulcer only one and a half inch in diameter. Numerous instances have been observed in which vomiting, diarrhoea, colic, and other symptoms of arsenical poisoning have followed the external application of arsenical preparations. 'Its use,' says Dr. Pereira, 'is always attended with some danger.' Sometimes the patient has, like Roux's, died after its topical application as a caustic; and with all the symptoms that follow the internal administration of the poison. Medical literature has on record a large number of such fatal cases. In speaking of the occasional danger attendant upon the local external use of arsenic as an escharotic in cancer, Sir Benjamin Brodie observes, 'An old medical practitioner, whom I knew in the early part of my professional life, informed me, that it had fallen to his lot to see many of Miss Plunkett's patients, and that after the application of her caustics, many of them died, from what seemed to be inflammation of the bowels.'—*Lectures on Various Subjects in Pathology and Surgery*, page 335."

14. *Chloride of Zinc as a Caustic.* By Prof. SIMPSON.—This preparation of zinc appears to have been first used surgically by Dr. Papenguth, of St. Petersburg, who recommended the application of a solution of it as a lotion for scrofulous ulcers and fistulæ. As an escharotic, in the treatment of malignant and semi-malignant ulcers and deposits, it was subsequently employed by Professor Hancke, of Breslau; and afterwards still more extensively, and for a time as a secret remedy, by Dr. Canquoin, of Paris. It was specially urged upon the attention of English surgeons by the writings of Dr. Alexander Ure; and during the last ten or twenty years it has been very frequently used in this country. It will only act upon an open or exposed surface, and not when the epithelium is entire. It is, however, a very effective, valuable, and safe escharotic, killing the morbid tissues to which it is applied to a depth corresponding with the thickness of the layer of chloride that is superimposed, and rarely or never being followed by any serious constitutional disturbance or disorder from the local absorption of the drug. Some degree of fever, however, according to Canquoin, occasionally follows the application of chloride of zinc, and, indeed, of all other caustics, when the cauterization is extensive. Professor Macfarlane states, that in two cases under his care there occurred both fever and severe gastro-enterite, which he attributed to the action of the

drug. The principal drawback, however, to its employment is its great tendency to deliquesce and spread; and in order to prevent any inconvenience or evil effects from this property, it is generally recommended, immediately before its application, to work the chloride up into a paste with flour and water, or gypsum and water, in quantities varying according to the strength of the escharotic that may be required; the usual proportions being one part of the chloride to two, three, or four parts of the flour or gypsum.

Besides the chloride of zinc, other chlorides have sometimes been employed as caustics, as the chlorides of antimony, gold, platinum, etc. Of late years Professor Landolfi, of Naples, has employed extensively, in various hospitals in Europe, a compound of chlorides as escharotics; and, according to some reports, with much success. His caustics consist of varying quantities of chlorides of zinc, antimony, and gold, combined with chloride of bromine; and worked into pastes with powdered liquorice root. Of these ingredients the most novel, and the one to which Landolfi attaches most importance, is chloride of bromine. He sometimes uses it alone as a fluid caustic. There are two inconveniences connected with its employment, either when used by itself or in combination: 1. The caustic is liable to spread, and the neighbouring parts must be properly protected from its action by being well covered with cloths or bandages immersed in appropriate ointments. 2. It requires to be formed immediately before its application; and the fumes that arise are so stifling as to prevent this being done within doors. On this last point a recent writer, Mr. Gamgee, who has watched and witnessed Landolfi's own practice, observes: "In consequence of the very intensely irritating power of the fumes emitted from the chloride of bromine, care must be observed in dealing with it. Thus, the paste should be prepared in the open air, with the mouth covered: and during, and for a short time after its application, the patient should sit near an open window."—*Researches in Clinical Surgery*, p. 87. *Med. Times and Gaz.*, Jan. 17, 1857.

15. *Sulphate of Zinc as a Caustic.*—Prof. SIMPSON in a recent paper (*Med. Times and Gaz.*, Jan. 17th, 1857), calls attention to a caustic which he has used often during the past year and which is free from the objections to which other caustics are liable. This consists of sulphate of zinc, applied either in the form of powder, or strong paste, or ointment to the affected part.

"Sulphate of zinc is a drug extensively and daily employed by medical men in solution, in the form of collyria, of lotions, of injections, etc. No writer, however, has, as far as I am aware, hitherto pointed out that when applied as a fine powder to an open and diseased surface, sulphate of zinc acts as one of our most powerful and manageable caustics. In using it for this purpose I have always employed it dried or anhydrous, and finely levigated. Sometimes I have applied it in the form of a simple powder, sometimes in the form of a paste made with glycerine, and sometimes as a strong ointment. To work it into a paste, about one drachm of glycerine to an ounce of the dried powder is required; and in this form it keeps for any length of time ready for use. A caustic ointment may be formed by pounding together two drachms of axunge with an ounce of the dried sulphate of zinc.

"When used in the form of a powder, paste, or ointment to an open or ulcerated surface, the part to which it is applied is rapidly destroyed to a depth corresponding to the thickness of the superimposed layer. The slough, eschar, or devitalized part is of a white colour, and usually separates on the fifth or sixth day, leaving behind it (if the whole morbid tissue is removed) a red, granulating, healthy, and rapidly cicatrizing wound. I have sometimes seen the edges of the wound already more or less puckered and contracted at the time of the separation of the eschar. The white slough or eschar itself shows no tendency to chemical or putrefactive decomposition, but is firm in texture and free from taint or odour. If we apply the sulphate of zinc in any case of malignant or semi-malignant ulcer or deposit, it will require to be repeated immediately after the first or preceding eschar separates, provided any yellow or unhealthy tissue remain at the bottom or in the sides of the wound, or if the surrounding hardness is not yet quite dispelled. After the last eschar is re-

moved the remaining wound or sore will rapidly heal up under any common applications, as black wash, astringent lotions, water dressing, etc.

"Sulphate of zinc, like chloride of zinc, will not act as a caustic where the epithelium is entire, or unless it be applied to a broken or open surface. This is at once an advantage and a disadvantage; an advantage in so far that it prevents all fear of the caustic ever unnecessarily affecting any of the healthy contiguous surfaces and parts, and renders its application and use far more simple and certain; and a disadvantage, because when we wish to apply it to a non-ulcerated structure, we must first remove the intervening epithelium by a small blister, or more effectually by the application of an alkaline or acid caustic. A paste made with sulphuric acid and powder of sulphate of zinc will both, perhaps, at once remove the epidermis, and give at the same time the action of the mineral caustic. If too liquid it may be prevented from spreading beyond the desired spot by enclosing that spot within a circle of oxide of zinc powder, or within a ring made with an oxide of zinc paste.

"The local inflammatory reaction around a sulphate of zinc eschar is generally slight and transient. I have never witnessed any very marked effusion or swelling in the surrounding parts, except where the caustic was used in the neighbourhood of parts containing a large quantity of loose cellular tissue. Nor have I ever seen the general system affected by any absorption of it, or any special constitutional symptoms or disorder follow the topical application of sulphate of zinc, however freely and lavishly used. Like other strong caustics, its action is usually, but not always, attended for a few hours with considerable local pain and burning. This local suffering, however, generally disappears more rapidly with sulphate of zinc than with arsenic or chloride of zinc, and may always be relieved when necessary by the temporary use of anæsthetics or opiates, or by applying locally along with it, or before it, a very small quantity of sulphate of morphia. The devitalized part or eschar also produced by sulphate of zinc separates sooner than after most other caustics. The eschar made by arsenious acid seldom separates before the sixteenth or eighteenth day; that made by the chloride of zinc usually separates from the tenth to the twelfth day. I have generally found the eschar made by sulphate of zinc to separate as early as the fifth or sixth day.

"The advantages of the sulphate of zinc, as compared with other caustics, are, therefore, in general terms: 1. Its powerful escharotic action; 2. The rapidity of its action; 3. Its great simplicity and manageableness; 4. Its facility of application; 5. Its non-tendency to deliquesce or spread; 6. Its perfect safety; and, 7, I believe I may add, its efficacy.

"On this last point, however, more experience will require to be accumulated than I can yet offer. But I have seen not only the surface of cancrioid or cancerous ulcers speedily and perfectly excavated by its application, but the surrounding characteristic induration becomes at the same time rapidly absorbed, and the remaining wound very speedily cicatrizes. I have seen, more than once, ulcers with irregular everted edges, dirty cavities and indurated bases and sides, and which had been open for years, become quite softened, closed and healed over within five or six weeks after the first application of the caustic. In spreading epithelial or cancrioid ulcer of the cervix uteri, I have found in as brief time, under the free local application of powdered sulphate of zinc, the ulcerated surface exfoliated, the sanguineous and sero-purulent discharges arrested, the parts temporarily, at least, if not permanently, cicatrized, and healed, and the patient's health, strength, and spirits restored, though, when first inserting the caustic, I believed the disease to be altogether beyond the reach of any remedial measures.

"Let me add here, that I have tried as caustics other metallic sulphates besides the sulphate of zinc. The sulphates of iron, nickel, etc., have a similar escharotic action, without presenting, as far as I know, any special claims or advantages.

"In a preceding paragraph it has already been remarked that many of the most famed secret pastes and applications that have at different times and in different countries been in fashion for the cure of cancer, contain arsenical preparations as their essential and efficient base. Perhaps it may be found

that sulphate of zinc is the principal ingredient in other secret caustic remedies. A few days ago, after showing some examples of the caustic properties of sulphate of zinc to Dr. Johnston, of Worcester, Massachusetts, during a brief visit which he paid to Edinburgh, that gentleman stated to me, that from accidental information which he had obtained from a druggist, he believed sulphate of zinc to form the basis of one, if not more, celebrated secret American applications for the cure of cancerous disease.

"Caustics are often used in practice for other purposes than the extirpation of cancerous and cancrroid malignant and semi-malignant ulcerations and deposits; and I have successfully employed sulphate of zinc in fulfilling most of the indications for which escharotics are resorted to, as for example—

"1. In the treatment of indurated inflammatory ulcers of the cervix uteri. To this part it can be readily applied, either through a speculum, or still more easily by means of a small ivory or wooden cylinder and piston, like the common leeching tube, or like Dr. Locock's glass tube for carrying silver solution; or in the form of a medicated pessary, made up with a small quantity of axunge or glycerine.

"2. In cases of lupus and rodent non-malignant ulcers of the nose and face, and other integumental parts. Here we must not forget Rayer's rule, that not one, but a succession of applications of any caustic, is generally necessary for ultimate success.

"3. In the annoying and intractable ulcerous forms sometimes assumed by certain cutaneous affections. Thus, I have seen it arrest a case of *Impetigo Rodens*, which, in despite of various applications, had gone on progressing for two years.

"4. In eating down the small red sensitive tumours so common at the orifice of the female urethra, and in the neighbouring vulvar mucous surface.

"5. In destroying ulcerated condylomata and warty excrescences.

"6. In several cases I have easily introduced the sulphate of zinc and glycerine paste, by means of a small catheter-like tube and piston, into the proper cavity of the uterus, to cauterize the open surfaces and diseased structures leading to obstinate menorrhagia; and which deep points it is, I believe, sometimes difficult, or indeed impossible to reach with any other efficient caustic. In the uterine cavity, as elsewhere, sulphate of zinc acts only upon any abraded and diseased surfaces that exist, and not to any extent upon the parts covered with healthy mucous membrane.

"7. I have tried to take advantage of the highly contracting power of the cicatrices left by sulphate of zinc in the replacement and sustentation of chronic prolapsus of the uterus and bladder.

"It will, perhaps, be found also adapted to the treatment of some obstinate ulcers of the limbs, and to the early cauterization and destruction of syphilitic chancres and pustule maligne.

"Other practical applications of sulphate of zinc as a caustic will, no doubt, betimes suggest themselves to the minds of the clinical Surgeon and Physician."

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## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

16. *Effects produced on the Blood by Mental Labour.*—Dr. THEOPHILUS THOMPSON read a paper on this subject before the Medical Society of London (Nov. 29, 1856). He commenced by remarking that the requirements of advanced civilization make increasing claims on the mental and physical energy, as the number of aspirants for distinction multiplies, sympathy becoming more intense, taste more fastidious, competition more keen, and the necessary concentration of mind on any special subject of pursuit involving exhausting effort. Intellectual, like muscular action, probably involves an expenditure of living material, and introduces a changing series of particles, those which have been

used giving place to others which come with the energy of new life to perpetuate the action. Stagnation may induce decay, but undue persistency, haste, or intensity, especially in creative efforts, may occasion waste. The author proceeded to adduce examples. One instance was an account-keeper, who, after being for some weeks engaged twelve hours daily at the desk, lost the power of fixing his attention, and became affected with such sensitiveness of the nervous system as to be frequently kept awake at night by tingling of his skin, and, when he fell asleep, disturbed by frightful dreams. There was no emaciation, loss of appetite, or disturbed digestion, and the urine was natural, with the exception of a few oxalate-of-lime crystals; but there was a strong venous hum in the jugular veins, a slight cut bled freely, and the blood under the microscope exhibited a remarkable deficiency of pale corpuscles, the proportion not being more than a fourth of the average in health, or a twentieth of what is common in phthisis. This patient, with better regulated habits, and the use of cod-liver oil and nitro-hydrochloric acid, has rapidly improved. The author observed, that the clergy, being specially exposed to the wear of thought and sympathy, are peculiarly liable to this disordered condition of the blood, their nervous system becoming unduly susceptible, and their minds rendered too easily accessible to the delusions of pseudo-science and quackery. He described the case of a popular clergyman, who, without impairment of digestive or muscular power, became affected with sleeplessness and disturbed continuity of thought, the principal physical symptom being jugular murmur. Nitro-hydrochloric acid, cod-liver oil, and subsequently phosphate of iron, with phosphoric acid, were employed with most satisfactory results. Dr. Thompson was disposed to think, that the wear of inordinate and anxious work acted as a succession of shocks through the nervous system on the blood, and he illustrated his views by histories of effects produced by sudden and violent shocks, physical and mental, showing that railway collisions occasionally produced results analogous to those depending on intellectual causes, and adducing an instance from the practice of Sir Henry Marsh of death from entire change of the condition of the blood, without any other organic disease, induced by the mental shock occasioned in a young lady by having accidentally administered poison to her father. After relating instances illustrative of the exhausting effects of exclusive attention to one object, and remarking on the varying phenomena resulting from differences of temperament, or from association with indigestion and other collateral ailments, the author proceeded to show, that in addition to measures directed to the regulation of the mental habits, medicines calculated to enrich the blood were most important auxiliaries, and that oils could often be employed when chalybeates proved too exciting. The class of cases referred to, pointed to the conclusion, that over-work of the brain may often occasion deterioration of the blood before the condition of other organs disturbs the brain. The probably hereditary transmissibility of such conditions makes them of incalculable importance, and happily they are amenable to treatment. The author concluded with remarks on successive changes in the prevailing type of disease. The plethoric condition prevalent in the seventeenth century gave place, in the eighteenth, to gastric congestion. This condition has now ceased to predominate, and we have perhaps entered on an anæmic era, likely, if not corrected, to prove unfavourable to the production of great men. As respects the application of medical theories, a wider range of view should be sought. If the medical art is to render a full share of good to the community, it must be not simply in treating the maladies of individual patients, but by ministering to the conditions which disturb the vitality of the race. Thus, whilst improving our appliances for daily work, remembering that we are enlisted in the service of mankind, we may make posterity our debtors."—*Lancet*, Dec. 13, 1856.

17. *Tache Meningitique*.—Dr. BAINES, in a communication to the Western Medical and Surgical Society (London) stated that Dr. Trousseau was wont to draw the attention of his pupils to the occurrence of a red mark or stain, which was readily observable on the skin of a large number of hydrocephalic children; to this he gave the name of the "tache meningitique, or tache cerebrale." Dr.

Baines then proceeded to describe it as of a reddish colour, varying from a faint tinge to a more vivid raspberry hue. In some cases it has been so distinctly developed, and so readily excited, that the patient's friends have drawn attention to it. Its development may be the result of accident, as when occasioned by the pressure or irritation of the bedclothes or portions of the child's dress, and in those cases it is chiefly observable on the face or neck; but it is more commonly intentionally caused, as by the pressure of the finger of the observer on the skin of the patient. When such is the case, a distinct red line marks the previous course of the finger. It is more readily observable on the face, neck, and chest than in the extremities, and will often fail to be excited in the latter parts, whilst it is most distinct in the former; rarely, however, the reverse is the case. Though most commonly seen in patients suffering from hydrocephalus, it is said to be observed in other cases; and Dr. Baines mentioned one case of acute congestion of the brain, and another of acute pneumonia of children, in both of which this tache was mentioned as existing during life; but in the latter case the brain was healthy after death; the child had died from convulsions. As to the stage of the disease in which it is most commonly found, the author thought, from his observations, that it was more likely to be seen late in the disease, and suggested that perhaps it might have reference to the stage of effusion. With regard to its cause, in the present state of our knowledge of its nature, he could scarcely offer a sufficient explanation. He thought that it could hardly be dependent upon any simple atonic relaxation of the capillaries, as occurring in exhausting diseases, because it had been observed in acute congestion of the brain, and in acute pneumonia complicated with convulsions; but suggested that it was due to some altered relation between the supply of nervous power to the capillaries and the circulation, allowing of a ready dilatation of the superficial vessels when any irritation was applied to the skin. Several cases, verified by *post-mortem* appearances, were narrated, in which the tache was a prominent symptom. In one it was absent altogether, and in another case, which recovered, it continued as long as the symptoms of the disease continued, and then declined with them. It had been noticed also, as proved by the cases cited—though not necessarily in all such—in head cases dependent upon the irritation of teething and from worms; but what was of some practical value was the fact of its absence in cases of gastric and remittent fever of children, in which the most urgent and prominent symptoms were referred to the head. All the remarks were supported by the cases quoted.—*Med. Times and Gaz.*, Dec. 6, 1856.

18. *Pathology and Treatment of Bronchial Affections in Infancy and Childhood.*—Dr. GRAILY HEWITT read a paper on this subject before the Royal Medical and Chirurgical Society (November 26, 1856). In the first part of the paper, the author, after alluding to the difficulties attending the study of chest affections in infancy and childhood, and the errors that are more or less universally prevalent as to the pathology of these affections—errors which he attributed in great part to the indiscriminate transfer of the nosology of disease in adults to that of early life—entered on a description of the pathological conditions of the lung associated with bronchitis and allied affections at this period of life. From a tabular statement of deaths in the metropolis in seven years, it appeared that in the first year of life 22.10 per cent. of the deaths arose from the four following causes: hooping-cough, influenza, bronchitis, and pneumonia; in the second year, 33.77 per cent.; in the third, 28.80 per cent.; these being diseases in which, at this period of life, the lungs exhibited after death more or less the lesion formerly described as “lobular pneumonia.” These calculations were given to show the extreme importance of any inquiry having for its object the dissemination of correct views as to the manner in which death is caused in a class of diseases so highly fatal to young children. The pathological condition known as “bronchial collapse,” was then described, its distinctness from ordinary pneumonia pointed out, as well as the impropriety of the designation “lobular pneumonia,” still extensively used in speaking of this lesion. The author contended strongly for the use of the term *apneumotosis*, first applied

by Fuche to this airless state of the lung, as tending to the recognition of a condition whose occurrence is to be regarded as one of extreme frequency in all affections involving the bronchial tubes at this period of life, and the supervention of which he considered to have a very great influence on the fatality of these affections. The fact that true pneumonia is an affection, and extremely rare in infancy, that most of the cases described as pneumonia and inflammation of the lungs, at this period of life, are to be regarded as cases of bronchitis in which the apneumatosi existing is thereby induced, were the points most insisted on as having an exceedingly important bearing on the treatment of such affections. The differences between the conditions *atalectasis* and *apneumatosi* were briefly alluded to, the first being a congenital, the second an acquired condition, the lung being in both destitute of air. Having then alluded to the pathology of these affections, and especially the manner in which death is brought about by these pathological alterations, the subject of the treatment adopted was considered. The author contended, that pneumonia, in the true sense of the word, being absent, and a condition exceedingly liable to arise, which in itself is of a highly depressing, devitalizing character, the continued administration of medicines, or the adoption of therapeutic measures tending in the same direction—such as depletion to any great extent, or the giving of tartar emetic, as is so commonly the practice in all bronchial and chest affections in children, is to be reprobated, and such treatment is opposed by theoretical and practical considerations. It was contended that the chief object being to prevent death, and death generally occurring owing to the supervention of apneumatosi, our endeavour should be to prevent the occurrence of this lesion. The treatment recommended in mild cases of catarrh or bronchitis, consisted in particular attention to the diet and regimen of the child, the administration of an emetic of ipecacuanha to promote expectoration and removal of mucus, sinapisms, &c. In severer cases threatening apneumatosi, emetics, given however with greater caution, and only when the strength is not reduced, the administration of small doses of ipecacuanha wine at frequent intervals, with or without carbonate of ammonia, as the case may be, and friction of the surface of the chest with sweet oil, frequently repeated; the object of these frictions being to promote the expansion and movements of the chest, the consequent filling of the air-cells with air, and the removal of mucus from the tubes, the presence of this mucus, together with imperfect expansion of the chest, being considered as the chief agents in the promotion of apneumatosi. Stimulants were also recommended at this stage of the affection. The experience of the author had led him to think very highly of this plan of treatment, the urgent symptoms having been almost constantly relieved thereby in a very large number of cases which had come under observation, and in which the above treatment was uniformly pursued.

Dr. Webster agreed with the author generally in his views. The disease was one of most frequent occurrence, being the third in point of fatality, while pneumonia was the second. It was proportionately the more fatal among boys than girls, in consequence, as he believed, of the greater exposure to which the former were subjected. In fatal cases he had generally found bronchial affections, on examination after death, combined with disease of the lungs. He differed from the author in reference to the effects of tartar emetic, which he regarded as a most valuable remedy, especially in the early stages of the disease, if administered with discrimination. He considered that there was no remedy so valuable in cases where the skin was hot and dry. The author had not mentioned the warm bath, which was often very serviceable as an extra medical remedy. In the early stages bleeding was absolutely necessary, but he preferred cupping-glasses to leeches, which drew uncertain quantities of blood and occupied a longer period. A fat, flabby child would not bear bleeding so well as a spare one. Diuretics (which the author had failed to mention) were of great importance in later stages of the disease, according to the excellent maxim of Baglivi, "In morbis pectoris semper ducendum esse ad vias urinæ." Blisters were beneficial, but they should never be kept on longer than was necessary to make the skin red.—*Med. Times and Gaz.*, Dec. 6, 1856.

19. *On the Determining Causes of Vesicular Emphysema of the Lung.*—Dr. JENNER, in a paper read before the Royal Medical and Chirurgical Society (Jan. 13, 1857), after referring to the importance of ascertaining the determining cause of pulmonary vesicular emphysema as a guide for its prevention, and to the predisposing influence of all changes in the structure of the lung which impair its contractility, adverted to the fact, that the only force capable of unduly dilating the air-cells called into play during respiration, is the pressure of air on their inner surface. He then briefly recapitulated the inspiratory theory at present generally received, and quoted the following passage from the latest exponent and most powerful advocate of that theory: "The act of expiration tends entirely towards emptying the air-vesicles, by the uniform pressure of the external parietes of the thorax upon the whole pulmonary surface; and even where the air-vesicles are maintained at their maximum or normal state of fulness by a closed glottis, any further distension of them is as much out of the question as would be the further distension of a bladder blown up and tied at the neck by hydrostatic or equalized pressure applied to its entire external surface."<sup>1</sup> The object of his paper, Dr. Jenner stated, is to show, in opposition to these views, that the force called into play by powerful expiratory effort is by far the most common and efficient cause of vesicular emphysema of the lung. Powerful expiration is, Dr. Jenner affirms, infinitely the most frequent determining cause of acute vesicular emphysema, and of the chronic vesicular emphysema which accompanies chronic bronchitis. It is probably the constant determining cause of the vesicular emphysema which supervenes on chronic congestion of the lungs and bronchial tubes, and on diseased heart, and of the atrophous emphysema of the aged, and the invariable determining cause of vesicular emphysema whenever it is general, or occupies chiefly or only the apex and border of the lung, and whenever the dilatation of one or more vesicles is extreme. Dr. Jenner denies that during expiration every part of the lung is equally supported and equally compressed, and he affirms that the apex, the anterior margin, the margin of the base, and some parts of the root of the lung, are at once imperfectly supported, and comparatively or absolutely little compressed only during expiration. The thoracic parietes covering those parts of the lung which are the least supported and compressed, are those which are seen when a person makes a powerful expiratory effort with a closed or imperfectly open glottis, as in whooping-cough, croup, and hypertrophous emphysema, to be driven outwards. These same parts are the most common seats of emphysema. Three cases are detailed by Dr. Jenner in illustration of his position. In proof of the force exerted on the air-cells of the lungs, when powerful expiratory efforts are made with a closed glottis, mention is made of the well-known fact, that during the expulsive efforts of labour one or more cells occasionally give way. In a postscript, the author mentions that he had examined several horses, for the purpose of ascertaining whether the parts of their lungs affected with vesicular emphysema were situated in those parts of the thorax the least supported and compressed during expiration, and that in all he found such to be the case.

Dr. SIBSON referred to a paper, published by him in 1844, in which he espoused at considerable length the inspiratory theory, which was opposed to that brought forward by Dr. Jenner. He had attempted, however, to disembarass his mind as completely as possible of his previous views, while listening to Dr. Jenner's paper; but he confessed that those views had not been in the slightest degree modified by what he had heard. It had been stated that in emphysema, during coughing, the lung rose up into the neck, and above the clavicle: but he maintained that it was not the lung that then rose, but the large venous sinuses of the neck that were largely distended. Dr. Jenner said that, during inspiration, there was a falling in of the lung at that part; but he (Dr. Sibson) contended that that arose from the opposite cause to that alleged, namely, the blood being prevented from entering into the right side of the heart. The upper part of the chest was not, as stated, that which least supported the lung during expiration, it being, as he was able to prove, the most supported part

<sup>1</sup> Dr. Gairdner's Monthly Journal of Medical Science, vol. xiii. 10.  
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in all animals that breathed with the diaphragm. In all such animals, with the exception of the ant-eater (in which the first rib resembled that of birds and reptiles), the upper rib was the strongest of all. In animals that did not breathe with the diaphragm the upper ribs were not included in the sternal set, those commencing lower down; but in animals that breathed with the diaphragm the lung was drawn forcibly down, and were there not an enormous counterpoise it would be drawn inwards at each inspiration, so that there would be a large chasm in the upper part of the chest and the lower part of the neck, instead of the lung being expanded equally in every direction. The upper rib was the strongest; it had muscles of great power acting immediately upon it, inclosing the lung in a muscular case of great firmness, which, during inspiration, while it drew up the ribs (particularly the first and second), also drew up the upper part of the lung; and there was a small muscle acting upon the portion of cellular tissue outside the pleura, to draw up the apex. The muscles yielded but little during expiration. Putting them aside, however, there was but a small portion of the apex above the anterior part of the first rib, the more important part of it lying upon the first, second, and third ribs. That was a part eminently the subject of emphysema; and it would be found, by *post-mortem* examination of cases of emphysema, that there were no cases in which so small a portion of the lung was superior to the first rib; while in no cases was there so large a portion as in cases of phthisis. He was convinced that if Dr. Jenner would examine his position with increased care, he would modify the views he had expressed. The idea of the lung being variously supported during expiration was opposed to the commonest law of physics, that of the pressure of fluids being equal in every direction. It was true in reference to the ribs, cartilages, diaphragm, liver, etc., that some of them were more yielding than others, but they were all less yielding than any part of the texture of the lung itself. Dr. Jenner had rightly said that the lowest part of the lung in front was the part that fell in during inspiration in emphysema; but there was a portion at the upper part of the sternum (the whole of the two upper thirds) more emphysematous than any other, and that was the portion more expanded during inspiration in emphysema, and the most pressed out during expiration. At the lower part of the sternum it fell in, and the expansion there, at all events, could not be by expiration. At the lower part, the lung was exceedingly lengthened downwards in every case of emphysema, sometimes by an inch or an inch and a half. The form of the chest in emphysema was inspiratory; the shoulders and sternum being raised, the neck shortened, the head dropping, the scapulæ raised upwards away from the chest, the walls of the chest universally expanded except over the lower region; and surely it was not rational to conclude, since the form was inspiratory, that the cause of emphysema was expiratory. He thought, however, that there was an expiratory cause when the emphysema assumed a certain form familiar to pathologists, that of a peculiar sacculated projection. In those cases the cells were greatly swollen, in consequence of the impossibility of the escape of the air from the bronchial tubes during expiration. During inspiration the tubes were being widened, and the facility of expiration was gradually diminished, so that a large part of the air inspired could not get out. But he maintained that the usual cause was inspiratory. In one or two *post-mortem* examinations he thought he had traced another cause, namely, the confinement of fluid within certain lobules, thus enlarging, and sometimes bursting them. Such cases, however, were very exceptional. He did not think the expiratory theory was at all affected by the paper of Dr. Jenner.

Dr. EDWARD SMITH remarked that the author's theory was not so opposed to that ordinarily received as the antithesis of the terms inspiratory and expiratory, and the author's denunciation of the inspiratory theory seemed to imply; since, on both theories, the disease is produced by the forcible entrance of air into the cells. The disease is not produced by or during expiration; since it is essential, on the author's theory, that the glottis should be closed; and hence, when expiration is permitted, the production of the disease cannot occur. The occurrence of the disease with cough (that is, under the conditions mentioned by the author), has long been admitted by the advocates of the inspiratory

theory: and since the essential act in the induction of the disease is the introduction of air into the cells, he would regard the author's theory simply as a modification of the inspiratory, notwithstanding that the power employed is that which, with the glottis open, would be expiratory. The author's theory is one of compression and dislocation of the contained air, and not of expiration. In cases of chronic bronchitis, he believed the disease to be often directly induced by inspiration. In that disease there is obstruction to the entrance of the air, from the retention of an excessive volume of the residual and reserve air, whereby the cells remain at all times too much distended; and the dyspnoea is mainly owing to the fact that a sufficient quantity of tidal air cannot gain access to the air-cells, while the residual and reserve air becomes effete by reason of insufficient change. Hence the efforts to inspire are usually forcible and sudden, while the movements of inspiration are unusually small, so that a greater pressure must be exerted upon the column of air in the air-cells than is found in health; and thus at the points the least supported or enfeebled by disease, and also at those the most in the line of the inspiratory power, the cells will dilate.—*Med. Times and Gaz.*, Jan. 24, 1857.

20. *On the Secondary Eruptions following Vaccination.*—Mr. Ross read a paper on this subject before the Medical Society of London (Feb. 7, 1857).

After some general observations on the obscurity of the subject, the author said: "The propositions which I shall endeavour to establish are—1st. That there are various forms of eruptive disease consecutive to and caused by vaccination; 2d. That these eruptions appear at different periods, and are subordinate to the specific laws of the vaccinous disease; 3d, that these eruptions are not prejudicial to the person vaccinated, but are rather evidences of the complete impregnation of the system, and of the protective efficacy of the act of vaccination. Notwithstanding the assertion by some authors that vaccination does not cause consecutive disease, the occurrence of such disease has been frequently noticed by medical practitioners; and even its varieties have been designated. Most works on diseases of the skin have some reference to such affections. There is not, however, any methodical analysis on record of such maladies, and they have been regarded rather as unimportant casualties than as legitimate sequences of vaccination. The desire, probably, thoroughly to establish vaccination in the confidence of the public has insensibly led to a depreciation of the after-symptoms, whereas it would have been more philosophical to examine the facts themselves, and to trace their actual connection, if any, with the original disease. There need be no fear that the great value of Jenner's immortal discovery will be impaired by an accurate acquaintance with all its phenomena. The whole number of secondary eruptions noticed by me during the period whilst I was conducting these inquiries was nineteen, and of these the specific character was recorded in eleven; the others were adverted to in general terms as 'secondary eruption;' but I believe that the greater number, or the whole of them, were of the vesicular type. Of these eleven, one was a transient exanthem, three were papular, and seven vesicular. In three other cases an eruption appeared at the end of about three weeks, but whether these cases were attributable to vaccination or not, the evidence is not decisive. The vesicular eruptions varied much in character, sometimes being as small as millet-seeds and few in number, at other times as large as a crown-piece, and looking as if one vesicle was comprised within the circle of another. The size of the eruption was frequently that of the cow-pock at the eighth day, which indeed it very much resembled, being a vesicle with a small central depression and circumferential redness. These eruptions were always preceded by fever, which was proportioned in degree to the number of vesicles thrown out. This fact proves the constitutional character of the affection. On this point I may remark that I have several times seen patients suffering from pyrexia and general *malaise* on the day when in other cases an eruption has usually appeared; but of these I have taken no account. The pyrexia, however, has convinced my mind that the activity of the virus does not always cease with the drying-up of the pock. Even after the local action has disappeared, there are periodical changes going on in the constitution—which are,

according to circumstances, of greater or less energy, and which are manifested by fever and secondary eruptions. The most important point connected with these secondary affections is their periodicity. In some of the cases the eruption appeared on the tenth day from the day of vaccination; in others on the fifteenth day; whilst, in one case, the eruption was thrown out on the tenth day, it continued for a few days, then disappeared, and was observed again on the fifteenth day. In other instances, the eruption appeared both on the fifteenth and twentieth days, or thereabouts. These cases further show the periodicity of the affection, and seem to reconcile the discrepancies between the cases that occurred on the tenth and fifteenth days respectively. Much accuracy of observation is required to fix these facts, and the reports of parents must be taken with some allowance, and very rigidly examined. The surgeon should himself see the eruption, and he will be able to determine, after a very short experience, whether the eruption be one or two days old at the time it comes under his observation. The day on which the accompanying *malaise* occurred must be also taken into consideration. Without such carefulness as this, the surgeon may be misled as to the precise day of the occurrence of the eruption, by the report of the mother, who may have failed to notice the rash on the first day. Another source of error will be the development of the original pock: for I need not say that when vaccination is done with dry lymph, as it must necessarily be in rural districts under the existing crude and inefficient regulations, the development of the local and constitutional effects will vary from the genuine type, being often two days later than is proper—that is to say, a pock at the eighth day will be smaller than it should be, and will not reach maturity until the tenth. So frequently does this occur, that I have heard surgeons say that they prefer to take matter from a tenth-day pock, it being larger and fuller than the eighth-day pock. This is true only when dry lymph has been used, and not always true even in this case. I have known the pock to begin to be developed on the eighth day after the insertion of the lymph, and then run a regular course. These and others such are aberrations from the genuine type, and when they occur must be allowed in the calculation. Whatever variations may be observed in the secondary eruption may be referred safely to some irregularity in the primitive pock. The proper period from which to date the phenomena of vaccination is the formation of the vesicle, the symptoms anterior to this being variable. From the moment, however, that a vesicle is formed, with its attendant constitutional pyrexia, which occurs ordinarily on the fifth day, the phenomena, if the pock be genuine, proceed in regular succession, and may be safely calculated. Hence it would seem, if my observations on the secondary eruption be correct, that vaccinia, as a disease, is subject to a periodical evolution in the system, which is manifested by a critical eruption on the fifth, tenth, and fifteenth days. It is not my intention at the present time to discuss the characters of the primitive pock further than as they illustrate the phenomena of the secondary eruption. The constitutional pyrexia sets in on the fifth day, continues on the sixth, abates on the seventh, and recurs on the eighth day; it continues on the ninth, and abates on the tenth. On this day the secondary eruption generally appears. I have long held the opinion that the constitutional effects are not produced so much by the small quantity of lymph inserted under the skin, as by absorption from the pocks; these being not merely final results of certain constitutional actions, as generally supposed, but means of thoroughly impregnating the system with the virus. They are laboratories of lymph rather than mere eliminants of a poison. Hence it is that the security of the system, according to Mr. Marson's observations, is in a direct ratio to the number of pocks induced. If we open a pock with a lancet we can exhaust it of all its lymph; if we wait a little we shall be supplied with a fresh secretion; and so on for an indefinite period so long as the pock maintains its activity. If the pock be not opened, we have a right to conclude that the same process of secretion is continually going on, and the excess of lymph, instead of being evacuated, as in the former instance, is absorbed into the system. There is no reason to think that the absorption does not proceed from the surface of the skin under these circumstances, whilst it is the rule on all other surfaces of the body, whether

mucous or serous. In fact, the functions of every organ are sustained by a due balance between the processes of secretion and absorption in unintermitting activity. Hence the constitutional pyrexia in vaccination commences with the formation of the vesicle; and hence, too, the number of vesicles is a measure of the immunity conferred. This argument holds good, I think, in small-pox and other similar affections, as well as cow-pock." Mr. Ross then recited the particulars of several cases illustrating his views, and continued: "I need not quote a large number of cases, as they resemble each other very closely. A table accompanying this paper exhibits at one view all the facts I have been able to collect. It will be observed, in reference to the table, that the frequency of the secondary disease depends upon the time of year when vaccination is performed. During the summer, when the circulation is hastened, and the functions of the skin are actively performed, the consecutive eruption appears more frequently than in winter, when it is very rare. The winter is generally admitted to be an unfavourable time for vaccinating, as the coldness of the temperature depresses the vital powers, and tends to prevent, especially among the poor, the proper development of the pock. In consequence of the greater prevalence of the secondary eruption in summer, and the suspicion with which it is viewed by parents, I have been accustomed to postpone vaccination as much as possible during the high temperature of June, July, and August; and I think it would be better if this caution were generally observed, especially with private patients, for nothing can be more disagreeable to a surgeon than to find his little patients covered with an eruption which he did not anticipate. It is fortunate that the eruption rarely continues more than three or four days, and is frequently more evanescent, a circumstance which distinguishes it from the ordinary eczematous diseases. I may observe here, that no experience on this matter can be worth much that is limited to an observation of the pock on the eighth day, as is the ordinary practice in public institutions. Hence I do not regard as of any weight the objections of those gentlemen who, with such an experience, have denied the existence of a special secondary eruption. Being public vaccinator for an extensive district, I vaccinate a considerable number of children every week, at the present time, yet from never watching the cases after the eighth day, I rarely hear of instances of secondary eruption; but I have not the slightest doubt that I should discover them, as frequently as heretofore, if I followed the cases up as I did when I was conducting these investigations. I think that I have now adduced evidence sufficient, if not to convince absolutely, at least to induce a strong presumption in the mind of an unbiassed man, that vaccinia, under certain circumstances, is followed by a secondary eruption, special in its nature, though various in forms, which observes fixed periods of evolution, and is an integral part of the original affection."

A discussion of some length took place, in which several fellows of the Society joined. The chief point discussed referred to the question whether the secondary eruption was the direct result of the vaccination, or merely the consequence of the irritation produced in the system by the introduction of a foreign matter. It was generally considered that the secondary eruption was the result of simple irritation produced in the system by the vaccine virus, and that any other source of irritation might have been followed by the same results; that, in fact, the eruption was due to the development of some latent disposition in the system to the eruptive disease which manifested itself. None of the speakers had been enabled from observation to connect the eruption with any periodicity in its appearance.

Mr. Ross, in reply, stated that the whole gist of his paper depended on this periodicity, of which he was certain, and without which his paper advanced nothing new. He thought the subject open to investigation, and upon that point was worthy of the serious consideration of the Society.—*Lancet*, Feb. 14, 1857.

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21. *Inoculation of Man with the Matter of "Grease."*—On the 29th of April, in the present year, a communication was addressed to the Academy of Medicine, at Paris, by M. MANOURY, surgeon to the Hôtel Dieu, at Chartres, and M. PICHOT,

a physician at La Loupe, concerning a man who had been accidentally inoculated with matter proceeding from a horse affected with grease; and at the same time some of the matter obtained from the man was forwarded to M. Bousquet for experimental purposes. The account of the case is this: On Tuesday, the 5th of March, a farrier, named Brissot, aged 28, called upon Dr. Pichot in consequence of a painful affection of his hands, and, on examination, these organs were found to be considerably swollen, and covered with *opaline and umbilicated pustules, which were confluent, and in every respect similar to vaccine pustules of the eighth or ninth day.* He had never been vaccinated, and he had not been near any cow, but he remembered to have shod a short time previously a horse affected with grease. This happened on the 11th of February. There are twenty-four days from the 11th of February to the 5th of March, but as at this latter date the pustules presented the appearance of vaccine pustules of the eighth or ninth day, it is necessary to conclude that the period of incubation had been fifteen days. The horse was seen by M. Boussergent, a pupil of the veterinary schools of Toulouse and Alfort, and found to be suffering from a true attack of grease.

Dr. Pichot obtained some matter from the back of the hands of the patient by puncturing the pustules with a lancet, and having placed it upon glass, some was sent to M. Manoury, at Chartres, and some to M. Bousquet. With the matter sent to him, M. Manoury made a series of very exact experiments upon children, and in every case (the number is not given) the inoculation resulted in a well-defined pustule, of the size of a large lentil, umbilicated, surrounded with an areola, and not to be distinguished from a vaccine pustule. He also obtained similar pustules by inoculating other children with the matter obtained from these pustules. Some of this secondary matter was also sent by M. Manoury to M. Bousquet, and this gentleman inoculated a child at one and the same time with it and with the matter obtained directly from Brissot, and sent to him by Dr. Pichot. The right arm was inoculated with the one kind of matter, and the left arm with the other kind. The result was remarkable. The inoculation made with the matter obtained from the farrier failed altogether, producing neither congestion nor irritation; but in the inoculation made with the matter obtained secondarily from the child, the operation was perfectly successful, and every puncture was followed by a pustule which differed in no respect, either in its history or its appearance, from the common cowpox.

These facts speak for themselves. There is developed in the hands of this farrier a malady which has all the properties as well as all the appearances of cowpox, and the only question is as to how this malady originated. The man declares that he had not been near any cow, and he remembers to have shod a horse affected with grease, fifteen days before the skin became affected—a horse which, when examined by a veterinarian, was found to be suffering in the foot and lower part of the leg from that cutaneous malady which is characterized by a discharge, at first serous and limpid, then yellowish, acrid, and fetid, with a reddish swelling of the skin and subcutaneous tissue, which the French call *défluxions, eaux-puantes, eaux aux jambes*, and which we call *grease*. Is there, then, that intimate relation between cowpox and grease which appeared to be so probable to the illustrious discoverer of vaccination, and to some of his contemporaries, and which has since this time been almost or altogether overlooked? Jenner wrote, in 1798, that cowpox was given to cows by farm servants, from horses suffering from grease; and he succeeded in producing cowpox in a cow, and the vaccine pustule in a man, by inoculating them respectively with matter obtained from a horse thus affected. These experiments were repeated at the time, sometimes with success and sometimes without; and the cause of the uncertainty was not known until the subject was investigated by Mr. Loy, a surgeon living at Pickering, in Yorkshire. These investigations, which are models of scientific induction and deduction, were made in 1801. In the beginning of the year this gentleman was consulted by a farrier, whose hands were covered with an eruption, consisting of pustules, separated from each other, and surrounded by an inflammatory circle. These vesicles resembled those proceeding from a burn, only they were regularly rounded, and their centre exhibited a black spot which seemed to have been caused by some slight

injury. This man had been engaged in dressing a horse suffering from grease. He had never suffered in the same way before, but he had had the smallpox. About the same period, a butcher, living at Middleton, a place near Pickering, was attacked by painful ulcers on both hands, and especially about the roots of the nails. These ulcers became inflamed in the course of a few days, and a vesicle formed upon each of them. The lymphatics of the arms also became red and painful, and a tumour formed in one of the armpits. There was also a pustule on one of the eyebrows, similar to the pustules upon the hands, which had to all appearance been communicated by touching or rubbing the part. In this case there was considerable fever. This patient, like the last, had been occupied in attending upon a horse suffering from grease, and was so occupied at the time he fell ill. He had not had smallpox.

In order to ascertain whether this malady was communicable by inoculation, Mr. Loy inserted some of the matter contained in the pustules into the arm of a brother of the man, who had never had smallpox. On the third day a vesicle had formed. Then there were some feverish symptoms. In the end the vesicle exhibited all the character of true cowpox.

Contemporaneously with this experiment, some of the same matter was inserted, by means of a new lancet, into the teat of a cow. Nine days afterwards there was a vesicle, surrounded by a red areola. The teat also was hard to some distance from the puncture, and so painful that the animal would not allow it to be touched. A few days later a crust had formed upon the vesicle, and the inflammation had subsided.

An infant was inoculated with matter taken from the pustule which had formed upon the teat of this cow, on the ninth day from its commencement, and the progress of the inoculation was watched with great attention, when it was found that the inflammation, the vesicles, and the formation of the crust were not to be distinguished from the corresponding phenomena in ordinary vaccination. On the sixth day this infant was inoculated with the smallpox, and the puncture seemed to inflame until the third day; but this disturbance passed off without any further development, and the child escaped the disease.

Another infant was inoculated with matter taken from the butcher. On the third day there was a pimple on the part punctured; on the sixth day this was surrounded with a pale inflammatory circle, and the borders were more elevated than the centre; on the eighth day there was a vesicle containing a limpid fluid; on the fourteenth this vesicle had changed into a brown and hard crust. Shortly afterwards this child was inoculated with the smallpox, without any result.

In addition to these experiments, Mr. Loy inoculated the nipple of a cow with a very limpid matter, taken by a perfectly clean lancet, from the heel of a horse suffering from grease. On the fifth day the part punctured was elevated and surrounded with a pale redness. A few days afterwards a purple vesicle, containing a limpid fluid, had become formed, and the part was swollen and painful, but the general health of the animal did not appear to be affected.

Mr. Loy then inserted matter, which he had taken from the pustule of this cow, into the arm of an infant. On the sixth day afterwards there was considerable redness, and on the ninth a vesicle. Then this infant was inoculated in three different places with smallpox, and absolutely without result, either local or general.

Another infant was inoculated with matter taken from the heel of the horse which had been the occasion of the mischief. Three days afterwards there was a pustule, surrounded with a small degree of inflammation; on the day following this pustule was more elevated; on the fifth day it had changed into a vesicle of a purple colour; on the sixth and seventh days this vesicle had become larger and darker. These changes were accompanied by a considerable degree of fever, the onset of which was marked by shivering and vomiting. The variolous inoculation was tried in this case, also, but no impression was made by it.

Three other children were inoculated with matter obtained from this last-mentioned child on the sixth day after its inoculation; and on the tenth day they presented vesicles surrounded with some degree of erysipelatous redness.

These vesicles at this time were beginning to dry, but they still contained a considerable quantity of limpid matter. The children were then inoculated with the matter of smallpox, and the only effect of this operation was to produce a slight degree of local inflammation, which disappeared on the fifth day.

It was only after several unsuccessful attempts that Mr. Loy was able to satisfy himself that the matter of grease would act upon the cow without having first passed through a metamorphosis in the human body. At last, however, he found that the inoculation was abortive unless the matter was taken from a horse in which the symptoms of grease were general as well as local, beginning with fever and ending with an eruption, not only in the heels, but upon other parts of the skin, the fever subsiding when the eruption made its appearance.

These observations of Mr. Loy are also confirmed in every respect by the observations of Signor Sacco, whose *Trattato de Vaccinazione con osserv. sul Giavardo et Vajuolo Pecorine* were published in Milan in 1800.

M. Sacco says that his first attempts at inoculation with the matter of grease were very unsuccessful. Before reading Mr. Loy's treatise, he had operated unsuccessfully upon twenty-seven cows and eighteen children; and, before he succeeded, he was still doomed to failure in several instances. At length his own horse was attacked with grease, and he repeated his experiment with the clear viscid and fetid serosity which escaped from a crack in the heel on the fourth day from the commencement of the symptoms. These experiments, which were made upon two children and one cow, failed as completely as the others. *But his groom, who had to dress the heels of his horse, was affected with five pustules, three on the right hand and two on the left forearm, which pustules were precisely like those of the cowpox.* This man had not been inoculated. Unfortunately, however, these pustules were too much dried up to be serviceable for any experiment when they were first seen by M. Sacco. About the same time, the coachman of a gentleman called Clari, who had also had to dress a horse suffering from grease, and who had not had smallpox, had both his hands covered with a vesicular eruption, accompanied with fever and diarrhœa. These vesicles were perfectly similar to the vesicles of smallpox, and several children who were inoculated with matter obtained from them by a colleague of M. Sacco, M. Birago, went through the regular stages of the vaccine complaint. In addition to this, the same coachman was taken, on the same day on which M. Birago made his experiments, to the Foundling Hospital at Lembrate, and then M. Sacco inoculated nine children and one cow with matter obtained from him; the result being, that the operation failed upon the cow and upon seven of the children, and succeeded upon the remaining two children. In these two children the complaint produced was absolutely undistinguishable from common cowpox, and the matter obtained from these children has been subsequently used in a long series of vaccination.

Nor is this the only evidence connected with this subject. On the contrary, Jenner himself wrote, in January, 1801, of a farm-servant on a neighbouring estate near Berkeley, who was affected on one of his hands, after tending upon a horse affected with grease, with pustules which were not to be distinguished from those of cowpox, and upon whom the inoculation with the matter of smallpox failed some three months afterwards. And in February, of the following year, Jenner writes of having seen, in the preceding summer, a pustule resembling cowpox upon the hand of another farm-servant, who had been employed in dressing a diseased horse. He says, moreover, that he made several attempts to vaccinate with matter procured from this pustule, but without producing any other effect than a slight and transitory redness. This failure, however, did not at all shake Jenner's confidence as to the relationship existing between grease and smallpox; and as explaining the failure by showing that the causes of success depend upon very subtle conditions, he remarks further that he had always failed to carry cowpox by a lancet from one cow to the teat of another. He also says that oxen and bulls are never affected with cowpox (this might be expected), and that vaccination succeeds readily upon calves of either sex.

Such, then, is the evidence upon which the analogy between grease and cowpox must be made to rest, and hence the case of Brissot must be regarded as a

very important contribution to the history of philosophical medicine.—*Ranking's Abstract*, vol. xxiv., from *Gaz. Méd. de Paris*, May 31, June 7, 14, and 21, 1856.

22. *Treatment of Asphyxia*.—M. FAURE terminates a long series of papers by the following conclusions: 1. Asphyxia, whatever may be its cause or its form, is identical. If the symptoms dependent upon the manner in which it is produced, or upon the secondary lesions it has given rise to, vary, its own characters, viz., those which are due to the general alterations consecutive to the changes in the blood produced by a defective hæmatisis, are absolutely invariable. 2. It is the most exact representation of the condition termed hyposthesia. From the beginning to the end, it is but a gradual enfeeblement of the vital powers. The intellectual faculties first succumb, then the locomotive powers, next the organic functions, and, finally, the proper properties of the tissues. 3. Of all the faculties, that which is easiest followed during the different phases of its disappearance is the sensibility. Abolished at first at the extremities of the limbs, it goes on gradually diminishing, until it exists only in a very limited portion of the body, the pupil. Not only does it thus progressively disappear from the surface of the body, but there is also observed a determinate gradation in the decrease of the different degrees of its power. At first, mechanical stimuli are found to have lost their power over it, then cold, and, lastly, the actual cautery. When this last is applied to the upper part of the chest without producing any effect, death has certainly taken place. 4. When the asphyxiated person is restored to life, we find him recovering his lost properties, functions, and faculties, one by one, in the inverse order to that in which he had lost them. Locomotive power is never re-established till a late period, and the intellectual and moral faculties later still. Sensibility is especially recovered at the point it was last limited to, and then gradually extends over a larger surface. 5. The fundamental fact in asphyxia is the abolition of general excitability, and the reproduction of this is the sign of the return of life. 6. In our treatment we must exclude everything that can diminish the powers of the organism. We must not mistake for the effects of organic changes the perturbations that may be observed, as a tendency to coma, convulsions, etc. These being merely functional, dependent upon the condition of asphyxia, disappear with it without the aid of any special treatment. Especially must bleeding be abstained from, except in regard to true inflammatory accidents that may be ulteriorly developed. 7. The only suitable treatment consists in the employment of stimuli. These lose or gain in power according to their mode of application. Applied from below upwards, that is, in the direction of the paralysis, however powerful they may be, they will prove of no avail; while even very simple ones, employed in a contrary direction, are of great efficacy. A drowned person had resisted for eight hours the most energetic stimuli applied to all parts of his body, when Cagé restored life by gently tickling the fauces with a feather. 8. Slight stimuli may suffice in the most serious cases, when the asphyxia has not lasted long; but this is not so when the state of apparent death has long continued; for then the asphyxia has produced disorders which, added to the primary cause, render the restoration of life more difficult. In such cases, we must act with perseverance and energy, in order not only to obtain the first signs of returning life, but also to resist the tendency to relapse into a state of somnolence, and to definitively expire as soon as the attempts at revival are discontinued. 9. The first resistance should be overcome by means of cold affusions or cauterizations, and sometimes by the simultaneous employment of these. The affusions should be extended over the entire surface, being especially directed towards the head, and projected with force, at short intervals. For cauterization, the nearest object capable of bearing a great heat will suffice, as a piece of iron, or charcoal, a heated pipe, etc. In order to judge of the condition of the patient, we may first try the application to the lower extremities; but we must never expect to reanimate him, except by applications made from above downwards, commencing at the point where sensibility still exists. The heated body must be gently applied, the applications being multiplied, each not occupying more than three millimetres in extent, and not penetrating beneath the epidermis. As soon as some signs

of sensibility have been induced, the cauterizations should be rapidly extended over the entire surface of the body, the patient being driven to crying out, struggling, and resisting. When sensibility is thus everywhere aroused, we may substitute for the cauterization flagellation, inflicted by the hands, fresh nettles, rods, etc. No pause must be allowed in the treatment until the asphyxiated person be completely restored; and, if by any chance he falls into his former condition again, the cauterization must be again had recourse to. 10. Restored to himself again, so far from allowing him repose and sleep, we must not only watch over him for several hours, but tease him by every mode to move about, so as to overcome the tendency to hypostatic congestion, which is one of the constant effects of asphyxia; and which, to all appearance, is the determining cause of death, when this takes place some hours after reanimation.—*Med. Times and Gaz.*, Dec. 27, 1856, from *Archives Générales*, tom. viii. p. 83.

23. *The "Ready Method" in Cases of Narcotic Poisoning.* By MARSHALL HALL, M. D.—Many years ago, a lady drove to my door in the utmost consternation, having shortly before swallowed an ounce and a half of Battley's solution of opium, in mistake for a senna draught.

I instantly applied the stomach-pump with my own hands, and her life was saved.

I have often asked myself the question: What should I have done had I not had the stomach-pump in all readiness, and had not been able to induce vomiting? Until this hour, I knew not how satisfactorily to answer this fearful question.

There are two stages in narcotic poisoning, in each of which the "Ready Method" is, in the absence of the stomach-pump, our *hope*.

The *first* is, that in which our object is to remove the poison from the stomach by the induction of *vomiting*, but in which, from the degree of narcotism, all ordinary remedies fail.

The *second*, that in which our object and hope are, to continue respiration until the elimination of the poison from the system may be accomplished.

In the former case, the patient should be laid on a table, with the head projecting beyond its edge, if possible; if not, on the floor; and, being placed on the *side*, the finger of one person is to be introduced into the *fauces*, whilst the body is briskly and repeatedly rolled into the *prone* position by another.

If there be the slightest degree ("*scintillula*") of excito-motor power remaining, the *cardia*, already somewhat relaxed, perhaps, from torpor, will be still further relaxed, physiologically, whilst the *glottis*, the safety-valve of the trachea, is closed, and the *thorax* and *abdomen* being compressed by a force equal to the superincumbent weight of the body, to which further force may be added by means of pressure made along the spine, *mechanical* vomiting will be produced, and the poison expelled.

This desirable effect will be produced in cases in which the narcotic torpor is too great to admit of exciting the very complex act of *physiological* vomiting.

But let us now suppose that the narcotism is too deep for the success of this manœuvre—that the *second* case is before us. Then our hope consists in continuing respiratory movements until the poison is eliminated from the blood and the general system. In one word, our hope is in the "Ready Method," such as I have recommended it for asphyxia!

I suppose that volition has ceased, and that the patient can no longer be made to move or walk about; that all good physiological respiration has ceased, or is about to cease; then, one hope still remains—postural respiration—and the other measures comprised in the "Ready Method in Asphyxia;" and I need not say how long and perseveringly this method should be continued.—*Lancet*, Jan. 17, 1857.

24. *The Ready Method in Cases of Choking.* By MARSHALL HALL, M. D.

Death in choking is the result of a diastaltic spasmodic closure of the glottis.

Nothing can be done in this stage of the accident, except, 1, to endeavour, by introducing the finger into the fauces, to induce vomiting; 2, to introduce something like a *bougie* into the *œsophagus* (a firm scroll of linen being the

readiest); or, 3, to adopt a measure, which I adopted on an emergency, with immediate success, some years ago.

A little boy, eating some fowl in haste, attempted to swallow too large a morsel, and was choked; I ran to him, placed him between my knees, one knee (the right) pressing firmly on the stomach, the other on the back; I then placed one hand (the left) on the back part of the thorax, whilst I gave a firm blow with the other on the sternum. In an instant, I had the joy of seeing the morsel of chicken expelled with force to a considerable distance; and all was safe!

But supposing all these efforts to fail. What is then to be done?

In the midst of the asphyxia induced by the closure of the glottis, the excitomotor power fails, and the larynx is no longer spasmodically closed; and now the "Ready Method" may be adopted, with the effect of sustaining life, until such a bougie is made as shall be effectual in pushing down the morsel of food or other object in the pharynx or œsophagus.

A *firm* scroll of cotton or linen, when imbued with grease, made from a sheet, a window-blind, or curtain, may then be made, not in too great haste, and be boldly passed into the œsophagus.

The morsel of food is generally lodged in the pharynx, or *upper* part of the œsophagus, and, when found lower down, ceases to excite reflex action of the larynx; and breathing is, therefore, possible.

A thin bent tallow-candle, or a piece of firmish *cord* (taken from the window-frame), might answer the purpose of the bougie.

The "Ready Method" procures us the *time* necessary for obtaining or preparing *any* of these means, and for giving full directions to the assistants. In performing it, a little brisk movement may be adopted in pronation, and in making dorsal pressure, which may, if not at first, eventually dislodge the foreign body.

I need scarcely suggest that this last measure should also be enforced in cases of a foreign body inhaled into the larynx both *before* and *after* tracheotomy, with the addition of a firm blow, with the open hand, on the back.

January, 1857.

P. S.—I have been informed of the case of a patient, dying from the influence of *chloroform*, in one of the London hospitals, having been rescued by the "Ready Method." Surely it should be published in all its details.—*Ibid*.

25. *On the Treatment of Neuralgia by Valerianate of Ammonia.*—Dr. DECLAT recommends the valerianate of ammonia in the treatment of neuralgia, and quotes the following very remarkable case in proof of its efficacy in that disease. A lady had been affected ever since six years of age with a most severe facial neuralgia. The pain first appeared on the occasion of her cutting a wisdom tooth; the tooth was extracted, but without any relief of the neuralgia. All the ordinary means were tried in succession: internally, sulphate of quinia, opium, belladonna, sulphate of strychnia, iron, gold, &c.; externally, opium fomentations blisters, morphia, chloroform, collodion, aconite, &c. M. Jobert de Lamballe performed cauterization with a red-hot iron in the course of the inferior maxillary nerve. This treatment diminished a little the acuteness of the pains, without making them disappear; and, although suffering less, the patient could neither eat nor speak. She was obliged for at least six months to have recourse to nutritive injections and tonic baths to support her health and her life. She was afterwards ordered to take twelve drops of a diluted Fowler's solution of arsenic three times a-day, and this treatment was followed by a little improvement; but the tongue became red, and the stomach painful, and on continuing the medicine at the urgent request of the patient, there were vomiting, diarrhœa, cramps in the stomach, and a return of the neuralgic pains. The arsenious course was then discontinued, and the valerianate of ammonia was ordered. On the 3d of January, 1856, a teaspoonful taken in the evening rendered the night endurable; two spoonfuls the next day procured relief. On the 6th of January, the patient was able to go out and to converse; on the 19th she opened her mouth and began to eat. The dose of the remedy was successively raised to a dessert spoonful night and morning; the improvement was so

great that the countenance assumed a totally different appearance, and the appetite returned. At last, on the 6th of May, the pains having completely ceased for several days, the use of the medicine was discontinued. From time to time some twinges of pain occurred, but each time the valeriate caused them to disappear, and Dr. Declat believes that there is no reason why the remedy should lose its efficacy in case of relapse.

In a subsequent communication,<sup>1</sup> Dr. Declat has stated that the valerianate of ammonia which he employs is a brown liquid, not very limpid, of a disagreeable taste, and smelling strongly of the peculiar odour of valerian; of this liquid he employs a teaspoonful for a dose in continued neuralgia and hysteria; but he gives two or even three teaspoonfuls in paroxysmal neuralgia, at the period of pain. Dr. Declat was first induced to try the curative effects of the valerianate of ammonia by observing the benefit which he experienced himself from its use when he was suffering from frequent headaches resulting from a severe attack of meningitis. It produced in himself the sedative effect of opium without the cerebral inconveniences which the latter drug always induced.

It should be mentioned, that the composition and properties of valerianate of ammonia are not yet accurately ascertained, and that different specimens obtained from a variety of sources are far from being uniform. It is therefore necessary that some standard preparation should be established before this remedy can be brought into general use.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *L'Union Médicale*, July 8, 1856.

It appears now that the preparation first introduced to the notice of the profession by M. Declat, is a solution of valerianate of ammonia of a fixed strength, which has long been prepared by M. Pierlot, a pharmacien in Paris, and which has been extensively exhibited to the epileptics, both at the Salpêtrière and the Bicêtre. M. Pierlot has at length published his formula, which is as follows: Distilled water, 32 drachms; Valerianic acid, 1 drachm; Subcarbonate of ammonia, q. s. To neutralize the acid, add Alcoholic extract of valerian, 2 scruples.

His object in the construction of this formula, he says, was to obtain a concentrated solution of all the constituents of valerian root, in a condition as little disagreeable as possible. He maintains that valerianic acid pre-exists in the root, and is an educt, not a product, as hitherto presumed.

However that may be, there seems to be some virtue in the medicine. Dr. Desmarres describes a case of intense choroiditis, in which, after considerable depletion and low diet, severe paroxysms of neuralgia supervened. Doses of a grain and a half of sulphate of quinia seemed merely to exasperate the pains. He then tried Pierlot's solution of valerianate of ammonia, in doses of three-coffee-spoonfuls per diem; and the first day the pains so far remitted, that the patient obtained a tranquil sleep, and in a few days more he quite recovered his appetite. Dr. Tufnell, Professor of Military Surgery in Dublin, has also tried it in some cases, and found it eminently successful.

26. *Sulphur Externally in the Cure of Rheumatism.*—Sulphur is an old and favourite remedy in many forms of rheumatism, and in none more so than in sciatica; usually, however, it is administered internally, and we do not remember having seen it made use of in the mode in which it is employed by Dr. Fuller, at St. George's Hospital. If the sciatic nerve is the part implicated, Dr. Fuller orders the whole of the affected limb to be encased in flannel, thickly sprinkled with precipitated sulphur. This flannel is kept in its place by means of a bandage, and the whole limb thus bandaged is "covered with oiled silk or gutta percha, which has the effect, not only of increasing the warmth and confining the vapour of the sulphur, but also of obviating the disagreeable odour consequent on the application of the remedy. This bandage should be kept applied day and night. Contrary to what might be expected, *à priori*, absorption of the sulphur takes place rapidly, and the breath, the urine, the secretions from the bowels, and the cutaneous exhalation, unmistakably attest its presence in the system." (Dr. Fuller *On Rheumatism, Rheumatic Gout, and Sciatica*, ed. 2, pp. 456, 7.) If the pain is seated in the shoulders, or other parts to

<sup>1</sup> *L'Union Médicale*, Aug. 30, 1856.

which the sulphur cannot be applied in the mode above specified, Dr. Fuller orders the compound sulphur ointment to be rubbed in for twenty minutes, night and morning. In rheumatic affection of the shoulder-joints, and in those instances in which the pain remains fixed about the insertion of the deltoid muscle, Dr. Fuller assures us that no external application proves equally useful; and, as he has two patients at present under his care at St. George's Hospital, for whom he has prescribed this remedy, we hope, ere long, to be able to confirm this statement. The value of sulphur externally in sciatica is dwelt upon at some length in the second edition of Dr. Fuller's work, and a case we have recently observed under his care at the hospital bears out the statements there made as to its efficacy. The patient, a man 33 years of age, had been suffering from sciatica on the left side nearly nine months, and had been under treatment during the greater part of that time. The usual remedies had been employed without success, and the man's health was beginning to fail. Dr. Fuller prescribed full doses of the sesquioxide of iron internally, and applied sulphur externally, in the manner already specified. In little more than a week the pain was much relieved, and had ceased altogether in less than a month. The doctor remarked that this case was one only out of many in which he had observed the greatest benefit from the external use of sulphur, but that the remedy is not equally successful in all instances. When the case is attended with feverishness, and with acute pain, even when the limb is at rest, he has never seen relief result from its employment, nor has he when the skin is dry and inactive. In such cases, the sulphur remains unabsorbed for many days or even weeks, and is, therefore, incapable of exerting its curative action. But when there are no symptoms of active disease, when the pain is of a dull, aching character, and is felt chiefly, if not solely, when the limb is in motion; and when, more especially, the skin acts freely and the sulphur is rapidly absorbed, so as to require renewing every third or fourth day, then, according to Dr. Fuller's observation, nothing proves so serviceable as the sulphur bandage.—*Med. Times and Gaz.*, Jan. 24, 1857.

27. *Treatment of Itch*.—Dr. SCHUBERT states that he always treats itch, both in private and hospital practice, by soft soap and salt. Eight ounces of the former and four of the latter are dissolved in a quart of water, the patient being well rubbed with the warm solution night and morning. It is rather a painful application, but a cure results in three or four days, and often sooner, except in very inveterate cases, when some more days are required. The skin is afterwards well cleansed in a bath, or with soap and water.—*Med. Times and Gaz.*, Dec. 27, 1856, from *Medicin. Zeitung*, No. 28.

28. *Rottlera Tinctoria as a Remedy for Tapeworm*. By Dr. THOS. ANDERSON, Ass. Surg.—The *Rottlera tinctoria* is a species of euphorbiaceous plant found in the hilly parts of India, as along the base of the Himalayas from Assam to near Peshawur, in Central India, at the Northern Cercars, in Mysore, and at Parell Hill, near Bombay. In its habit it is almost arborescent, growing to twenty or thirty feet high. The substance called kamila, obtained by brushing the powder off the capsules of this plant, has long been known in India as a dye, and it is also occasionally used by the natives as a vermifuge; this latter property is supposed by Dr. Royle to depend upon the stellate hairs found in the powder. Dr. Anderson mentions that his attention was first called to the medicinal properties of this substance by Dr. Gordon, of the 10th Regiment, who had met with great success in employing it as a remedy for tapeworm. Dr. Anderson afterwards employed it himself for the expulsion of the same parasite in the case of several men of his own regiment. The powder is of a dark brick-red colour, with a peculiar heavy odour, increased on its being rubbed between the fingers. Its physiological action is very simple: on an adult the powder in a dose of ʒij or ʒss, besides purging, very often causes nausea and vomiting, and in some cases griping; its action on the bowels, however, is very variable, producing from four to ten or fifteen stools even when a dose of ʒij has been administered. A strong ethereal or alcoholic tincture, besides acting more mildly, is followed by more uniform effects. Dr. Anderson found that an

amount of the tincture sufficient to produce the full anthelmintic effect of the drug was never followed by more than six stools, and always acted without griping. After  $\mathfrak{z}\text{ij}$  of the powder have been administered, the worm is usually expelled in the third or fourth stool. It is generally passed entire, and almost always dead, and in about fifteen cases examined by Dr. Anderson he was unable to detect the head. The vermifuge properties of *rotllera tinctoria* have been attested in a large number of cases. Dr. M'Kinnon has mentioned sixteen successful cases in a paper published by him, and he has since administered the powder to nearly fifty patients, out of whom there were only two cases in which no worm was expelled. Dr. Gordon has tried the remedy in thirty cases of tapeworm with uniform success. The dose of the powder of the kamila which seems to act most satisfactorily is  $\mathfrak{z}\text{iss}$  to  $\mathfrak{z}\text{ij}$  in an adult; and  $\mathfrak{z}\text{ss}$  of the alcoholic tincture is the dose which is followed by the most successful effects.—*Indian Annals of Med. Sc.*, Oct., 1856.

29. *Medicinal use of Mora Excelsa and Eryngium Fœtidum*.—Dr. HARGRAVE brought under the notice of the Surgical Society of Ireland (Feb. 7, 1857) the effects of some medicinal agents, with which he had been supplied by Mr. Moore, the curator of the Royal Dublin Society's garden. He first alluded to the *Mora Excelsa*, a decoction of which—*R. Corticis moræ excelsæ*  $\mathfrak{z}\text{ij}$ ; *aquæ fontanæ*  $\mathfrak{z}\text{viij}$ ; decoque ad  $\mathfrak{z}\text{vj}$ —he had found of the greatest service in the cleansing and healing of fetid ulcers. The bark of the *mora excelsa* had been brought from Guiana, and presented to the gardens of the Royal Dublin Society by Mr. Mac.

Dr. Hargrave next alluded to the *Eryngium Fœtidum* or *Fitweed*, from the West Indies, which had been much praised for its utility in cases of hysteria and similar affections. Dr. Hargrave had tried it in a very severe case of prolonged singultus, which had resisted the ordinary modes of treatment, and it proved perfectly successful. *R. Eryngii fœt.*  $\mathfrak{z}\text{ij}$ ; *aquæ puræ*  $\mathfrak{z}\text{viij}$ ; decoque ad  $\mathfrak{z}\text{vj}$ ; capiat  $\mathfrak{z}\text{j}$ , ter in die.—*Dublin Hospital Gaz.*, Feb 15, 1857.

30. *On the Medicinal Effects of Ammonia and its Preparations*.—Dr. OGIER WARD read a paper on this subject before the Medical Society of London (Jan. 24, 1857). Ammonia has never been considered to be a normal constituent of the blood, as its presence had not been detected except after death in cases of typhus, cholera, melæna, and other diseases of a putrid character, until Dr. Richardson's recent discovery that healthy blood owes its fluidity to the presence of ammonia, which is given off during its coagulation, which process may be arrested, and the fibrin re-dissolved, by the restoration of the alkali. An interesting inquiry here suggests itself; how does the ammonia escape from the body during the coagulation of the blood, and how is it retained in those instances in which the blood remains fluid after death? Assuming the truth of Dr. Richardson's views, the author examined and compared the therapeutic effects of the various preparations of ammonia; and he has found that, whether applied externally or taken inwardly, they possess in common the property of dissolving the proteine elements of the blood, whether in the vessels or effused into the tissues; and thus confirm the experiments of Dr. Richardson. This similarity in the effect of ammoniacal medicines is owing to their ready decomposition, the ammonia being separated, and forming the chief curative agent, though it is aided by the other substances originally combined with it. Thus its stimulant and solvent action is similar in kind, if not in degree, when used either externally or inwardly in the form of gas, liquor ammonia, or combined with carbonic acid, &c. From the utility of these preparations in the treatment of venomous bites and stings, inflammatory swellings, diphtheritis, croup, &c., we may suppose that they will be equally efficacious in urticaria, erythema nodosum, and erysipelas, in which there is an effusion of the fibrinous elements of the blood. In these and other inflammatory diseases and conditions, it is probable that the ammonia is carried out of the system in the form of urea or lithate of ammonia contemporaneously with the increase of fibrine in the blood; and that the benefit of the salts of ammonia in such cases is owing to their preventing or removing the effusion of fibrin from the inflamed parts. In this

way, although the primary action of ammonia is stimulant, its remote effects are sedative or debilitant, as it not only arrests inflammatory action, but, by its resolvent and secernent power, carries the products of inflammation out of the system, and hence its utility in all active febrile complaints. It is to this attenuating property that its use as an antidote to drunkenness and to the stupor of opium is to be ascribed. Its stimulant powers are of use in poisoning by hydrocyanic acid, in the cold stage of ague, and in the retrocession of gout, rheumatism, and the exanthemata, as well as in syncope, hysteria, epilepsy, and convulsions. The hydrochlorate, which is the least easily decomposed, is probably the most useful of the salts of ammonia, as it not only possesses the stimulant, resolvent, secernent properties of the others, but owing to its combination with chlorine, is endued with tonic powers, by which its prolonged use, unlike that of the other preparations, is attended with invigorating effects both to mind and body; and thus it forms an excellent substitute for mercury in cases where this medicine is inadmissible from its tendency to produce cachexia.—*Lancet*, Feb. 7, 1857.

31. *Salt in Intermittent Fevers*.—Dr. MOROSCHKIN observes that during the prevalence of scorbutus and ague in the Transcaucasian provinces of the Black Sea, quinine sometimes entirely lost its powers. When no very prominent scorbutic affections were present he administered 1 oz. of salt in water, in two doses daily, during the absence of the apyrexia. In patients in whom the paroxysms were incomplete, very abundant sweating followed, the skin resumed its normal appearance, and the various other signs of amendment followed, the disease becoming cured in a few days, and the dose having been diminished. In cases in which the improvement was only partial, quinine now became more efficacious. Of 103 cases, 70 were completely cured, and the others meliorated.—*Med. Times and Gaz.*, Dec. 6, 1856, from *Schmidt's Jahrb.* Bd. XC.

32. *Cod-liver in Dropsy*.—Dr. SINIBALDI was led to prescribe the cod-liver oil in two cases of dropsical effusion, both of which terminated favourably. The first case was one of hydrothorax, in which the effusion was in the left cavity of the chest, pushing the heart over to the right side. The cod-liver oil was prescribed in the dose of two drachms twice a day after meals, the only other treatment being the use of tamarind pulp, and milk with a decoction of Iceland moss. The oil was increased in quantity to an ounce and upwards each day, and after about two weeks, an improvement was plainly manifested; the patient abandoned his lateral decumbency, the respiration was less difficult, some purulent matter was coughed up, the respiratory murmurs reappeared with some mucous râles, percussion gave a less dull sound than formerly, and the heart removed from its abnormal situation. The oil was continued, and a nutritious diet was ordered, and the symptoms of disease gradually disappeared, and the patient left the hospital. The second case was that of a boy, aged eight, who was suffering from scrofulous disease, and after an attack of gastro-enteric fever, a fluctuation was perceived in the abdomen. The cod-liver oil was recommended, together with the administration of pills composed of soap, potash, and extract of cicuta. After four or five days of this treatment, the secretion of urine was increased, and the measurement of the abdomen showed a diminished quantity of liquid poured out into its cavity, and after a short time, all traces of œdema disappeared. The patient pursued the cod-liver oil treatment for some months, to which were added the iodide of iron, and a meat diet, together with sea air and bathing. It was remarkable that in this case the urine was slightly discoloured and turbid, and gave out an ammoniacal odour. When exposed to heat, it presented a whitish, flocculent substance, analogous to the physical character of albumen; but the same effect was not produced by nitric acid.—*B. & F. Med.-Chirurg. Rev.*, Jan., 1857, from *Bulletino delle Scienze Mediche*, Dec., 1855.

33. *Remedial Power of Cod-liver Oil in Rachitis, Tuberculosis, and Scrofula*.—Dr. M. I. MARCUS, in an interesting paper on this subject, after an exami-

nation of the chemical constitution of this substance, discusses its efficacy in rachitis, tuberculosis, and scrofulosis.

Dr. M. says that it would be foreign from his object to go over all the diseases in which this remedy has been administered, inasmuch as since it came into use, it has been considered a panacea for all, even for diseases of the most heterogeneous nature; he confines himself to a notice of its influence upon the three principal diseases in which it has been given—rachitis, tuberculosis, and scrofulosis. The two latter are with intent submitted to a separate consideration, believing, with Lebert and others, in their independent existence. The power of the oil in rachitis is admitted, on the testimony of such distinguished practitioners as Bretonneau, Hauner, Mauthner, Canstatt, and others, and the works of Trousseau, physician to the "Hôpital des Enfants Malades," in Paris, are quoted with approbation. According to Trousseau, the improvement is manifest in most cases of children whose stomachs can bear the oil, in from eight to ten days, and the bones become solid and firm after four, or at the utmost six weeks. The learned editor of the *Journal für Kinderkrankheiten* has not, however, observed this exceedingly rapid effect in rachitis.

Dr. Marcus informs us that his doubts of the efficacy of the oil were first awakened in the case of tuberculosis. Whilst some recommend the oil at the commencement of tuberculosis, with the view of prevention, others again affirm that its greatest efficacy is manifest in the second and third stage of phthisis. It has been noticed that an increase of weight, by the continued use of the oil, even to the amount of from one to two pounds, each week, was not always coincident with a general improvement. The observations of Dr. Hutchison on a form of dyspepsia which occurs amongst the phthisical, and which is characterized by a difficulty of assimilating fat, are referred to. This complication clearly renders the use of this remedy inadmissible.

Dr. Vallon, in his report on the clinique of Professor Raimann, observes that the long-continued use of cod-liver-oil, in some cases of tuberculosis, was productive of a favourable change; in other cases, through nausea, or weakness of the digestive organs, it could not be tolerated. And again, that, in some instances, even after its protracted employment, no effect was produced. Dulk notices, amongst the effects which followed the use of the oil, an increase of the sweating, which is so distressing a symptom in phthisis. We must say that our experience is utterly at variance with this latter statement, for in the vast number of instances in which we have had recourse to the oil, in phthisis, we have never noticed an augmentation of the sweating fairly traceable to its administration.

After some further remarks on the use of the oil in phthisis, Dr. Marcus turns to scrofulosis. Dr. Hauner asserts that, from frequent employment of cod-liver oil in the hospital for children at Munich, he has come to the conclusion that it has no especial power over scrofulosis. His experience, however, is different with regard to rachitis. Dr. H. has given up its use, finding it exerts an injurious influence upon the digestive organs; children eat with less desire; their tongues become loaded; they suffer from nausea, eructations, and vomiting. It has also been noticed that the oil has passed away with the evacuations *undigested*.

Dr. Hauner remarks that the oil has been found less useful in the hot weather of summer than in the cool weather of winter. Schnitzer, a great panegyrist of cod-liver-oil, admits that it has no absolute specific healing power as an anti-scrofulous remedy. Dr. Mauthner says he sometimes uses cod-liver oil, but he has no belief in its wonderful efficacy, finding it of little service. To obviate its indigestibility, he gives it in the following form: *R. Ol. jecor. aselli, Muc. g. Arab., Syr. cort. aurant., aa ʒss; Aquæ flor. tilix ʒj.*—*M.* Three or four tea-spoonsful daily.

Dr. Marcus says that, as a military medical officer, his opportunities of seeing scrofulosis among the soldiers' children have been extensive, the condition in which they are placed being singularly conducive to the development of strumous disease. The quantity of oil used for these children has been enormous. Dr. M. employed it at first; but he became convinced of its inutility, and ceased to prescribe it. The conclusion which he has arrived at is, that

cod-liver oil has most influence upon rachitis, next in order comes tuberculosis, and scrofulosis stands lowest in the scale.

Dr. Marcus finally makes some observations on certain succedaneous remedies, which have been tried in diseased states for which the oil is usually prescribed.

On the supposition that the value of the oil depends upon the fat, experiments have been instituted by Belgian physicians with animal and vegetable oils.

Trousseau reports favourably of the effect of fresh butter. Dr. Th. Thompson speaks well of the oil of cacao-nuts; he has also used a mixture of almond oil and phosphorus.

Various preparations have been recommended as substitutes for cod-liver oil, in the belief of its possessing tonic qualities.

The leaves of the walnut-tree have been highly praised by some French physicians. Iodine, in combination with different kinds of oils, has been used as a substitute for cod-liver oil.

As a remedy for tuberculosis and scrofulosis, Dr. Mauthner has recommended the "extractum sanguinis bovini rec. preparatum," which possesses the ingredients for the formation of blood, and is also of easy assimilation. It has been found useful for children whose stomachs could not retain even broth or milk. Other physicians have experienced similar good results. Mauthner gives it in doses of 10 grains, increasing the quantity to 1 oz.

Dr. Weisse, of St. Petersburg, has found a remedy nearly akin to the extractum sanguinis bovini; viz., scraped raw beef, most beneficial in rachitis.

The object which Dr. Marcus has had in view in his paper is, to limit the excessive use, not to say abuse, of cod-liver oil, and to call the attention of physicians to like observations. We are ourselves unshaken in our faith in the great power of cod-liver oil—not merely as an internal, but also as an external remedy—over many forms of disease; but we have never looked upon it as a "universal remedy," and have frequently had occasion to deprecate its inordinate and indiscriminate use.—*Dublin Hospital Gazette*, January 1, 1857, from *Journal für Kinderkrankheiten*.

34. *Employment of Tannin for Cure of Chilblains and Discharges from Mucous Membranes.*—Dr. BERTHEL recommends the following treatment of chilblains: One ounce of bruised oak-galls should be boiled for an hour in two pounds of water, and the fluid employed two or three times a day forms a most efficacious application. The same result is obtainable by means of a decoction of oak-bark, or by a solution of half an ounce of tannic acid in  $\mathfrak{z}\text{vj}$  of water. If no ulcerations are present, we may also employ tincture of galls. Tannin as a hæmostatic and styptic, inducing no irritation or pain, is of the greatest service. In gleety urethral discharges, we may advantageously employ  $\mathfrak{g}\text{j}$  of tannin dissolved in  $\mathfrak{z}\text{iv}$  of water, and combined with  $\mathfrak{z}\text{j}$  of mucilage. The same mixture, taken by spoonfuls internally, is very useful in chronic diarrhoea and commencing dysentery. In certain forms of chronic bronchitis, the following formula has been of use, a spoonful being taken every second hour: Tannin,  $4\frac{1}{2}$  grains, ext. bellad. 1 grain, ext. cicutæ 3 grains, infus. sennæ 3 ounces, aq. fœniculi, syr. althææ, of each one ounce. Mix. Tannin is also a very useful remedy in menorrhagia, and leucorrhœa; but it requires to be taken in the pill form for months, and to prevent constipation it should be combined with aloes or rhubarb.—*Med. Zeit.*, No. 48.

35. *Local Application of Carbonic Acid Gas in Carcinoma and Uterine Neuralgia.*—M. MONOD states, that both himself and M. Demarquay have made repeated trials of this with great success in carcinoma uteri, and uterine neuralgia. They have extricated the gas by means of a common Briet's gazogene, and, prolonging the application for thirty or sixty seconds, M. Broca has found the application useful in highly irritable bladder.—*Gaz. des Hôp.*, No. CXXIX.

36. *On the Suckling and Feeding of Infants.*—Dr. KUTTNER, of Dresden, presents the following aphorisms as the fruits of his practical observation:—

1. A knowledge of and attention to their proper nourishment, is a fundamental necessity for the successful treatment of sick children. He who will cure them, must, before all things, know how to feed them.
2. Articles of diet must often serve as medicine, and medicine be used in place of food.
3. The mother's breast is the best food for the infant; and only when an absence of milk, or the condition of the mother's health, renders suckling impossible, should the substitution of a nurse receive medical sanction.
4. In the choice of a nurse we cannot be too careful and suspicious; but the most careful examination may prove defective, unless we can ascertain the condition of her own child.
5. Nurses sometimes conceal their deficiency of milk with much cunning. The continuous, spontaneous issue of milk is by no means a sign of actual abundance, but far oftener of an atonic state of the milk ducts and nipples.
6. When an infant does not thrive upon a breast, but is thirsty, constipated, and restless, the nurse, whatever the condition of the secretion of her milk may be, must be changed without hesitation.
7. Let the change be made at once, for all delay is injurious to the child.
8. A nurse's milk should entirely suffice for the child; but when the mother's milk does not do so, it should be made up, not by food, but by other milk—it being a popular error that the two milks do not agree.
9. It is not rare to find, in nurses having apparently abundance of milk, that this undergoes, on their first arrival, a considerable diminution. Regret at leaving their own child and home, different mode of life, and the irritation of the gland by the suckling, are the causes of this inconvenience, which ceases, if we wait quietly and encourage the woman.
10. The only test of the goodness of a nurse is the condition of the child. The state of its stools testifies to the quality of the milk, and the amount of urine to the quantity.
11. Except during the first few days, suckling every two hours is most suitable; for a too frequent and a too seldom application to the breast are alike injurious to the condition of the milk. For the sake of rest, a pause of five or six hours should be secured at night.
12. The appearance of the menses while suckling, if not accompanied by an abiding diminution of the milk, is not hurtful to the infant.
13. Suckling from a suppurating breast is not without danger both for the infant and the nurse.
14. The period for ceasing suckling, or for combining feeding with it, cannot always be determined beforehand. Neither the age of the child nor the presence of a certain number of teeth can alone determine this. Of not less importance are the state of the health and development of the infant, and its longing for other food, accompanied, as this sometimes is, with a remarkable indifference to the breast itself. The time of year, the condition of the nurse, and especially of the secretion of milk, have also to be taken into consideration.
15. The wide-spread opinion that cow's milk is more suitable in the spring, owing to the character of its food, is without foundation, as the milk is often then purgative; while in the autumn it often undergoes an advantageous chemical change.
16. Gradual weaning, when possible, should always be preferred.
17. When suckling is impossible, cow's milk offers the best substitute.
18. The artificial feeding of children, properly managed, does not lead to such unfavourable results as usually supposed; but it is more troublesome, and often more expensive than a nurse. Children so brought up may appear, during the first six or nine months, more imperfectly nourished than sucklings; but after that period they regain their size, and no difference can be detected between them.
19. It is always a great advantage for children who are to be brought up by hand, if they can be suckled during the first weeks, if even only partially.
20. We cannot lay down any absolute rules for artificial feeding, which requires adaptation to individual cases. The thriving of the child, the condition of its bowels, and its quietude or restlessness must be our guides.
21. The chemical analysis of milk shows especially that this secretion is liable to great individual quantitative and qualitative varieties, dependent upon a great variety of circumstances. Hence, the remarkable differences found in the examinations of the milk made by different chemists, and the difficulty in constructing a scale of the various kinds, according to the amount of their constituent parts.
22. Every addition to cow's milk should

have for its object the rendering it more similar to human milk, and, consequently, more digestible. 23 and 24. Much importance is not to be attached to always obtaining the milk from the same cow, or to the cow being fed on dry food (hay, etc.). 25. The morning's milk is preferable, not only because it is fresher, but because it contains notably less fat and casein. 26. Warming the milk when it cannot be given just after milking is desirable; for it otherwise gives rise to flatulence, diarrhoea, or constipation, or at all events to a most offensive smell of the evacuations, which at once disappears when the milk is given boiled. During the boiling a caseous membrane is formed, which, protecting the milk from the access of the air, causes it to keep better. 27. Skimmed milk is not suitable for infants. Cow's milk does not contain much more fat than human, and the quantity is easily diminished by dilution. Skim milk is not only too poor in fat, but it is too old; for, having stood so long to yield its cream, it has undergone certain chemical changes. As a general rule, it is an error to forbid children fat, butter, etc., in their diet, as we thus prohibit an important article of nutrition, that appears essentially to contribute to the assimilation of albumen and its modifications. Both substances are found in the maternal milk, the fat being more abundant the shorter the time that has elapsed since delivery. Fat is also an important medicinal agent in diseases, such as scrofula and rickets, indicative of a defective nutritive process. 28. Cow's milk in general contains very little more solid constituents than human milk, and the dilution usually made is not theoretically justifiable; and, at all events, this should never be carried so far that the child takes only one-half milk. Cow's milk is not rendered indigestible by the absolute amount of solid constituents, but either by their chemical condition or their proportions to each other being different, neither of which conditions is influenced by dilution. Not only does too great dilution deprive the child of nutriment, but it renders the milk more indigestible, for the author's experiments have shown, the more diluted the milk the more firm does its coagulum become. He has seen many children thrive well when fed from their birth upon undiluted milk, and especially when they could drink it fresh; and if given diluted at all, not more than a fourth, or at most a third of water should be added, to be left off after some months. 29. Among all the differences between cow's and human milk, the proportion of caseum is the most important, for not only is this more abundant, but it coagulates with more difficulty. While that of human milk coagulates into a loose, flocculent jelly, the caseum of cow's milk hardens into large firm lumps, which are with difficulty soluble, easily disturb digestion, and are often found unchanged in the stools. This alone constitutes the difficulty in nourishing infants upon cow's milk, and it also forms the best test for ascertaining the suitable digestion of the milk. To remove this by coagulation, and feed the infants upon the whey, would be to deprive the milk of some of its most precious constituents. Our object must be to render the coagulum as little firm as possible. Dilution only renders it more so, while the addition of half a teaspoonful of pulv. acaciæ to each cup of milk exerts a very good effect, the coagulum then taking in the appearance of a loose jelly. Such milk is well borne, and the undigested lumps of caseum are no longer found in the better-coloured stools. 30. Human milk is sweeter, and the addition of sugar to cow's milk is the more required the more diluted this is used. Sugar of milk is most to be preferred, although it sweetens less. Its sweetening power is, however, increased by the addition of a minute quantity of salt. 31. Addition of salts to cow's milk is unnecessary, as these are already more abundant than in human milk. In order to prevent acidification of the milk, and especially in summer, it is desirable to add a little chalk before boiling the milk, or, in the case of constipation, magnesia. Cow's milk requires as little assistance from other articles of diet as does the human milk. When the development of the child is sufficiently advanced, and especially if several teeth have appeared, vegetable nutriment may be added, as biscuit, or roll, and, later, gruel. These substances should be well soaked in water or weak broth, and a little salt, not sugar, added as a condiment. 33. If the sucking infant is the subject of diarrhoea, we must not all at once alter its food, but rather change the diet of the nurse, or if necessary employ another. When the employment of cow's milk with farinaceous

or gummy substances cannot be borne, and an exhausting diarrhoea continues, we should substitute raw yolk of egg in a decoction of grits.—*Med. Times and Gaz.*, Jan. 24, from *Journal für Kinderkrankheiten*. Bd. 26.

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

37. *Compression in the Treatment of Aneurism*.—MR. BLENKINS, of the Grenadier Guards, read to the Army Medical and Surgical Society (Dec. 6th, 1856), the report of a case of aneurism which had occurred in a soldier of his regiment, and had been cured in twenty-four days. The application of a seven pounds weight in the groin had been found to be the most efficient and least irksome means of applying the pressure. The contents of the sac were not absorbed, suppuration took place, and the whole fibrinous mass forming the interior of the tumour eventually escaped through the opening which had been made for the discharge of the matter. The mass, on admeasurement, was found to be four inches in diameter, having almost a circular form. The sac subsequently contracted and closed, and the man recovered the use of his limb. The author of the paper then referred to all the known statistics of aneurism by deligation and compression, showed how immensely superior the results were in favour of the latter mode of treatment, and expressed his conviction that no case should be ligatured primarily that was adapted for this mode of treatment. He expressed himself as decidedly opposed to the principles laid down by Mr. Syme, of Edinburgh, on this head, as, when compression failed, it rendered the secondary operation more certain of success by diminishing the risk of gangrene. In every case of popliteal aneurism which had occurred in the Brigade of Guards, since the revival of this method by the Dublin surgeons, this means had been resorted to, and in every instance with success. Mr. Blenkins looked forward to favourable results from the application of pressure to the distal side of the artery, in cases where it could not be adapted to the proximal end of the vessel. He also alluded to a preparation which was on the table, demonstrating a successful cure by compression for popliteal aneurism, which had occurred in the Coldstream Guards.

MR. PELHAM related a case of popliteal aneurism of the left leg, which had occurred at Chatham, under the care of Mr. Dartnell, in which two tourniquets or wooden clumps had been applied over the femoral artery; one at about a hand's-breadth over the knee, and the other below the groin; the clumps being tightened or relaxed alternately, as the pressure of one or other became irksome. On the fourth day, pulsation had entirely ceased in the tumour; and on the sixth day, the pressure of the tourniquets was loosened; on the day following they were removed altogether, and at the end of somewhat less than three months he was discharged for duty in the garrison, where he remained under observation for two months longer, and then rejoined his regiment in perfect health. Long prior to his departure, the tumour had entirely disappeared. The circumference of the limbs was alike at every part, the temperature the same, and the patient walked without any lameness. Mr. Dartnell remarked that, as far as he was aware, there was no case on record of popliteal aneurism where the cure by compression had been so rapidly successful.

DR. MONRO alluded to the case which had occurred in the Coldstream Guards, and which, as the author of the paper had stated, furnished him the means of displaying to the Society the beautiful preparation on the table. The patient was admitted into hospital on the 19th of April, 1852, with popliteal aneurism of the left leg, about the size of a small orange. Compression was commenced on the 22d, by means of an instrument invented by Mr. Phillips, of the Westminster Hospital. The pressure was made at first on the artery, immediately below Poupart's ligament. In about two hours, however, so much pain was complained of that the instrument was removed. Being convinced that the

pain complained of was excited more by alarm than anything else, manual pressure was made next day, about an inch and a half below the origin of the profunda, and this was kept up by the assistance of the convalescents in hospital for three days, for about eight hours each day. The man did not complain of any pain by this method, and said that he thought he could now bear the employment of an instrument; a clump tourniquet was accordingly placed on the thigh on the 26th, and moderate pressure only made on the artery; the sac was allowed to pulsate feebly. On the eighth day, the pulsation in the sac had entirely ceased, although no greater pressure had been made, and it had become considerably harder and smaller. The tourniquet, therefore, was removed, and nothing further was done than keeping the man in bed. He was dismissed to his duty on the 2d of July, the functions of the limb having been restored. On the 19th of November of the same year he returned to hospital with aneurism of the abdominal aorta, and died suddenly on the 10th of December. It being a good opportunity for obtaining a preparation showing the collateral circulation in the affected limb, a coloured injection was thrown into the common iliac, on that side; and the result was, as is now observed on the 10th, a most beautiful preparation. One circumstance remarkable in the preparation is, that the femoral artery and vein, from the brim of the pelvis to nearly the centre of the popliteal space, are unobstructed and of the natural calibre.

Dr. RICHARDSON related the following case of popliteal aneurism, which was then under treatment in the hospital of the Fusilier Guards: Sergeant Robert Legg, aged 28, of 11 years' service, was admitted on September 10th, 1856, with a large aneurism, occupying almost the entire popliteal space of the left lower extremity. All the characteristic symptoms were present, and the tumour was very elastic, and about the magnitude of the largest sized orange. The disease was first noticed three months since. Pulsation was felt in the arteries of the foot, and the veins of the leg were distended. Three arterial compressors of different forms, but all calculated to compress the main vessel without otherwise impeding the circulation of the limb, were applied; one was placed over the arch of the pubis, the second just below the orifice of the profunda, and the third at the lower part of Hunter's canal. His diet was moderately nutritious. The instrument at first occasioned pain; but, on the pressure being frequently changed from one point to another, he soon bore it well. In a few days the pulsation had almost ceased, whilst the pressure was continued, and the tumour began to solidify. On the 26th of September the pulsation had entirely ceased, whilst the pressure from the pads had been in the interim diminished. On the 3d of October, he stated that, during the past night, he had felt severe pain, followed, he thought, in the morning, by a more marked diminution of the tumour. It continued to decrease gradually, and become solid, until the 19th, when the apparatus (in consequence of the entire cessation of pulsation) was taken off. The measurement of the limb, which at first was  $15\frac{1}{2}$  inches round the apex of the tumour, at the last date was but  $14\frac{1}{4}$  inches. He has since been allowed to get up, and use moderate exercise. No constitutional disturbance ensued during the treatment except an attack of diarrhoea, which continued rather severe for about a week. For a fortnight, he took the following pill twice a day: Plumbi acet. gr. ij; pulv. opii, gr.  $\frac{1}{4}$ . The man can walk about at the present time with very little inconvenience.

Dr. JEPHSON, surgeon of the 1st Dragoon Guards, also forwarded the following case to the Society, which was read by the Secretary: Private Charles McIvors, aged 29, a healthy-looking soldier, of nine years' service, was admitted into the Regimental Hospital on the 14th November, with popliteal aneurism of the right leg. He stated that, on the 9th of August, when disembarking at Portsmouth, he felt for the first time, when exerting himself, a sensation of weakness in the right leg. A few days afterwards he marched to Aldershott, and when riding felt an uneasiness not amounting to pain. In the beginning of October, the leg became swollen from the knee downwards, but did not prevent him from doing his duty, and was unattended with pain. On the 1st of November he marched from Aldershott to Exeter, where he arrived on the 10th, being five or six hours daily in the saddle. During this time he suffered considerable pain down the leg, which became more swollen; and on the 14th he

reported himself sick. The right leg and ankle were much swollen and oedematous, the superficial veins being very prominent and distended. He stated that he had great pain, of a shooting kind, down the leg when he moved about, which did not exist on lying down. Upon examining the popliteal region, a large pulsating tumour was discovered, and on being questioned, he stated that he had observed a fulness there two nights previously, but thought nothing of it. The tumour was about the size and shape of a goose egg, projecting much to the outer side, the pulsation being entirely controlled by pressure on any part of the femoral artery, when the tumour entirely subsides, leaving a loose flabby-feeling sac; on allowing the blood to return, he suffered great pain in the tumour. The measurement around the leg, at that part, was  $1\frac{3}{4}$  inch greater than on the opposite extremity at the same site. No pulsation could be felt in the posterior tibial artery. The heart's action was increased, but quite healthy. Pulse 92, full and strong. V. S. ad  $\text{Æxvj}$ ; and take pulv. jalapæ co.  $\text{ʒij}$  statim. The diet was reduced to 6 ounces of bread,  $\frac{1}{2}$  pint of milk, and 2 ounces of butter daily.

16th and 17th. The tumour suddenly enlarged, and pointed towards the outer side. R. Pulv. jalapæ co., also tinct. digitalis  $\text{m̄xv}$ , ter die. Pulse still above 90.

24th and 25th. The tumour has not been increasing so rapidly since he has taken the digitalis, and his pulse is reduced to 84. Complains of weakness, but has little pain in the leg. The thigh was shaved, and a twenty-grain solution of argent. nitrat. applied three times over the skin of the groin, and front of the thigh. 27th. Pulse 94. From the 14th, the measurement over the tumour had increased  $1\frac{1}{4}$  inch, and the limb now was 3 inches more in circumference than the same part of the left leg. On this day, at 3 o'clock P. M., pressure was commenced in the groin, with Carte's hip apparatus, when the pulsation in the tumour was completely stopped, and also (he says) the pain complained of in the leg. The pressure was obliged to be increased from time to time as pulsation returned in the tumour. At 5 o'clock P. M., he complained of an indescribable sensation of weakness; the pulse was 62, slow, soft, and full; but on examining the tumour it was found beating as strong as ever, and the fissure was increased. 12 o'clock P. M. He complained much of the pressure. Carte's circular compressor was used over the middle of the femoral artery, and the pulsation in the tumour controlled by it, instead of by the hip apparatus. On the 28th, the pulse varied between 50 and 60 during the whole night, but about 4 o'clock A. M. it rose to 78. He slept for several hours during the night. The pressure, which now caused very little pain, was changed about every six hours, from the middle of the thigh to the groin, and *vice versa*. The pulsation in the tumour not being allowed to return during the change, he complained of being very drowsy.

29th. At 3 o'clock A. M. to-day, on removing the pressure, there was no return of pulsation, and the tumour had become quite solid. The temperature of the foot and leg was natural. At 5 o'clock P. M. he complained of being hot and feverish, the bowels not having been moved since the morning of the 27th. To take a castor-oil draught.

30th. Feels quite well, but weak; tumour solid.

Dec. 4th and 5th. Pulse 84; oedema and swelling of the leg much reduced, and the measurement over the tumour was increased more than an inch. Pulsation in a small superficial artery over the back of the tumour to be felt; experienced some difficulty in keeping the patient quiet, as he considers himself quite well, except for some stiffness in the back of the knee.

Dr. JERHSON remarked that this was a very successful case of cure by compression in thirty-six hours, and was one of the kind of cases, according to some authorities, which did not admit of that mode of treatment. It was an interesting circumstance to observe the falling of the pulse from 94 to 62, about two hours after pressure was commenced, and its continuing for eleven hours to vary from 50 to 60, when it increased to 78. The solution of nitrate of silver was used with the view of rendering the skin less sensitive, and tolerant of pressure. The success of the treatment of aneurism by compression will, he thought, be found to depend greatly on the kind of instruments used, and on the case being closely watched. In this case, pulsation returned in the tumour

more than fourteen times during the first night, after compression had been resorted to. To the care and close attention paid to the case by Mr. Andrews, the assistant-surgeon of the regiment, he was indebted for so quickly bringing it to a successful issue.

Dr. MACLACHLAN believed that if the records of the Medical Board were examined, a large number of cases would be found among the soldiers invalided, who had previously been cured of popliteal aneurism by compression. Considered that the paper read to the Society by Mr. Blenkins was a purely practical one, which, in a Society of this kind, was so much to be desired. The interests of a patient affected with popliteal aneurism would be much neglected if the surgeon neglected to resort to compression. He alluded to the case of an old pensioner at Chelsea Hospital, who would not at first submit to the treatment by compression; in this case, it was diagnosed that the whole arterial system was diseased, and fourteen days after the application of pressure, the aneurism burst into the muscles of the leg; the artery was tied, gangrene followed, and the limb was amputated; hemorrhage subsequently took place from the site of ligature; but the opening through which the blood flowed was small, and by pressure of the finger over the orifice the bleeding was arrested, but the man sank. At the *post mortem* examination two aneurismal sacs were found, but there was no obliteration of the vein; the sheath of the vessels, however, had united itself so closely to the coats of the artery that it was very difficult to pass a needle around it; this was to be ascribed to the effects of the pressure, and was a most desirable end; indeed, when compression had been employed, an obstacle of this kind may be anticipated as likely to happen.—*Med. Times and Gaz.*, Jan. 3, 1857.

38. *Seventy-eight Cases of Surgical Aneurism.*—JONATHAN HUTCHINSON, Esq., has published (*Med. Times and Gaz.*, Nov. 22 and 29, 1856) a tabular statement of seventy-eight cases of surgical aneurism. We have only space for the following analysis of the series, with comments:—

The table embraces 78 cases of aneurism or pulsating tumours involving large vessels treated under various plans, with the result of 57 perfect recoveries, 2, the disease remaining unrelieved, and 19 deaths. These relative numbers, when we consider the importance of the vessel involved in a considerable proportion of the cases, must be considered highly satisfactory. Of the fatal cases, 1 was after ligature of the abdominal aorta, 3 after that of the common carotid, 2 of the subclavian, 2 of the external iliac, and 10 of the superficial femoral. In 1 case death followed amputation of the thigh, consequent on the aneurism having become diffused, no ligature having been applied. All the cases, 5 in number, in which either the aorta (1), the common carotid (2), or the subclavian (2), were tied, ended in death. Of those in which the external iliac was tied, 3 recovered, and 2 died. Of those of ligature of superficial femoral 23 recovered, and 10 died. All those in which either the brachial or the ulnar were tied recovered. These proportions are expressed in the following table:—

Ligature cases.	Number.	Recovered.	Died.
Of abdominal aorta . . . . .	1	—	1
Of common carotid . . . . .	2	—	2
Of subclavian . . . . .	2	—	2
Of external iliac . . . . .	5	3	2
Of femoral—			
No previous trial of compression . . . . .	9	6	3
After failure of compression . . . . .	22	16	6
In Hunter's canal for pulsating tumour in tibia . . . . .	1	—	1
Tumour laid open and the bleeding vessels secured . . . . .	1	1	—
Total . . . . .	43	26	17

Of the causes of death, we have in the case of ligature of the aorta, *the collapse consequent on the operation*; in 1 of the 2 cases of ligature of the subclavian, *constitutional irritation*, etc., and in the other *secondary hemorrhage*; in 1

of those of the common carotid, *paralysis and nervous shock*, and in the other 2 *secondary hemorrhages*; in 1 of those of the external iliac, *diarrhœa and exhaustion*, and in the other *pleurisy, &c.* Of the 10 cases ending fatally after ligature of the superficial femoral, in 5 the death was from *gangrene*, in 1 of them *secondary hemorrhage* having also occurred; in 2 it was from *pyæmia*; in 1 from *constitutional disturbance following implication of the knee-joint*; in 1 from *amputation for gangrene*; and in 1 it was sudden and unexpected from *disease of the heart*.

This enumeration need not detain us longer than just to remark upon the rarity of secondary hemorrhage as a cause of death after ligature of the superficial femoral or external iliac, and its comparative frequency after that of the subclavian and carotid. As the whole 5 subclavian and carotid cases were fairly favourable ones for operation, and yet all ended fatally, their result must be held to point most definitely to the necessity for endeavouring to discover some other method of treatment, which, even if tedious, troublesome, and uncertain, should be exempt from so great a risk to life. Whether we regard Mr. Fergusson's case, in which a subclavian aneurism was cured without operation (Case No. 35), as one exemplifying the benefits of compression or of manipulation, or as one of accidental and spontaneous cure, its result is alike important and instructive.

Passing now to the special consideration of compression treatment, and its advantages, we must first separate from the series those cases in which, for various reasons, it was not tried.

*Compression treatment was not tried in 24 cases.*—Of these, 1 was an abdominal aneurism (71), 3 were of the carotid or its branches (38, 45, and 73), 2 were of the subclavian, and 4 of the femoral so high up as to necessitate ligature of the external iliac. To these which belong to the class usually deemed, from anatomical position, not susceptible of compression treatment, we might add 3 more, in 2 of which (Cases 7 and 78) the aneurism was of the femoral so high up, that although in each a very brief trial of it was made, yet it was desisted from of necessity, in consequence of there not being room for the pad, and in the third (Case 74), there not being room for the compressing pad, the tumour was laid open and the bleeding vessels tied in the wound. Here, then, we have 13 cases unsuitable from position. Of the remaining 13 cases, one (Case 59) was of the ulnar, traumatic, and already diffused, one (Case 33) of the radial under similar circumstances, and a third (Case 68) of the brachial of like nature. In these 3 the operators preferred to tie the injured vessel above and below the wound, to open the cyst, and to turn out the coagula, treating the cases, indeed, as those of wounded arteries. In a fourth case (70) the disease was a pulsating tumour of doubtful nature in the head of the tibia, and the sudden cutting off of the supply of blood by ligature of the femoral in Hunter's canal was preferred by the Surgeon (Mr. Lawrence) to any attempt at cure by compression. In the 9 cases which we have now left, the aneurism was either popliteal or of the femoral so low down as to have easily admitted of compression being resorted to. In 3 of these (4, 39, 51) the tumour was diffused at the time of the patient's admission, and there was no time for delay in treatment. In 2 (61 and 44), although not diffused, it was thought to be too large to be suitable for compression treatment, and was increasing too fast to admit of delay. In one the man was in poor health and the subject of constitutional syphilis, circumstances which induced the surgeon to prefer ligature to compression. In 3 cases (65, 53, and 57) there was no motive for not trying compression as far as the facts in our possession show. Of these 3 suitable for compression, but in which it was not tried, 1 ended fatally after ligature, and 2 recovered.

We now pass to the consideration of the cases in which

*Compression treatment was tried.*—Of these, 54 in number, the subjoined tabular statement exhibits the gross results. And it must here be borne in mind that these results, which cannot, we think, but be considered as triumphantly in favour of the new plan, have been obtained by surgeons, many of whom had little or no previous experience of its details. In this respect lithotrity and the compression plan stand in like condition. They are both of them more

difficult in the successful carrying out than the operations they are intended to supersede, and require more of special experience and of attention to detail on the part of the surgeon. The vast difference in result between lithotripsy in private and lithotripsy in hospitals is generally acknowledged, and it is probably to be explained in considerable degree by the circumstance that in hospitals the patients come almost by chance under the care of different surgeons, while in private it is a sort of specialty, and they come usually into the hands of those who have had large experience. We mean, of course, in saying this, not the slightest disrespect to the attainments and qualifications of hospital surgeons in general, but simply to assert that the old rule that "practice makes perfect" applies with equal force to the management of rare and difficult surgical cases as it does to the other affairs of life. Thus, then, we may fairly argue that, had the whole of these cases been under the care of one or two surgeons, very different results would have been obtained. And, further, we may fairly expect that in future, when compression treatment shall come to be more generally understood in all the details of its management than it is at present, a much larger proportion of successful cases will be produced.

Compression cases.	Number.	Succeeded.	Failed.
Subclavian aneurism (manipulation treatment)	1	1	—
Femoral . . . . .	5	—	5
Popliteal . . . . .	46	24	22
Anterior tibial . . . . .	1	1	—
Radial . . . . .	1	—	1
Posterior tibial . . . . .	1	—	1
	—	—	—
Total . . . . .	55	26	29

If we except, as we may fairly do, those cases from this number in which the compression treatment was only tried for very short periods indeed, we have a total of 51 cases and 26 successes, or rather more than half. Of the successful cases, all, excepting two, were popliteal aneurisms. Now, as we shall presently have to show that the cases in which compression did not effect a cure derived advantage rather than injury from its trial, we may thus state that the 26 successful cases were cured by means involving no risk whatever. In other words, the statistics of death from aneurism are the same as they would have been had these 26 patients never suffered from the disease at all; and the cases are to be counted as clear gain on the credit side of the surgical account. A few words may be said on the following points:—

*The average period of treatment.*—In the 26 successful cases the time occupied in treatment varied from sixty hours to eight months, its average being two weeks and five days. It must be borne in mind that in but few cases comparatively was the attempt made to secure complete arrest of the circulation through the tumour. In most it was only retarded, and in many the patient was allowed to lay aside the instrument at night. In some of the longest cases the constitutional suffering on the part of the patient was little or nothing. Amongst the means by which we have little doubt but that this average might be greatly shortened, and to which as yet but little attention has been given, are, 1. Local support to the tumour, and 2d. The diet of the patient. It is evident that by bringing the walls of the sac together, or nearly so, by local compression, its fibrinous obliteration would be likely to be assisted, and it is surprising so little has hitherto been attempted in this way. An air-pad, bandaged upon the tumour empty, and afterwards inflated, would offer the most convenient means. In several cases of failure, in which the tumour enlarged, the increase in size seemed to be merely from want of contractile power in the aneurismal walls. Apart from its benefit in relieving this condition, local support would also be very likely to disturb somewhat the coagula already formed, and thus afford projections for new fibrin to be deposited upon.

*Instrument to be used.*—We have, of course, in the different hospitals witnessed the employment of a great variety of compressing instruments. On the whole the result of experience has seemed to us to be in favour of those of simple

construction; those, namely, which consist of a modification of the clamp tourniquet. In some cases, Carte's apparatus, with elastic springs, has been found to answer; but in others it has been discarded after fair trial. A great point is to have an instrument by which the artery may be compressed as it crosses the brim of the pelvis, for here it is more free from the vein than at any other part of its course, and this is, perhaps, best attained by the cylinder weight described and figured in a former report.

*Cases in which compression failed.*—Of these we have 29 cases, 3 of which, as already observed, ought, however, to be excepted on account of the trial having not been persevered with. In two or three others also the trial was very short. In one case the patient being the subject of these aneurisms was discharged as beyond hope from treatment. In one gangrene of the leg threatened, and amputation was resorted to. In 3, the tumour threatening to burst, amputation was performed. In one ligature of the external iliac, and in one that of the brachial was performed. In 22 ligature of the superficial femoral was performed. Of the whole 29, 7 ended in death, 3 recovered after amputation, 2 were discharged in *statu quo*, and 17 recovered after ligature of the vessel involved.

The statement made above, that, even where it failed to cure, the compression treatment did no injury, is not to be understood as applicable to individual cases, but only to the average result. It is based on the fact that, whilst of 27 of that class (all of the lower extremity) submitted to ulterior treatment, 20 recovered, or nearly 3 in 4; out of 10 cases of ligature of the femoral, no previous treatment having been adopted, only 6 recovered, or rather more than 2 in 4. If it be objected that the mortality of the latter was above the average, we may refer to the collection of cases made by Norris, who, in a series of 188 primary ligatures of the femoral, found that 1 in every 4 died. Now, when we consider that, in not a few of those cases in which ligature was performed after failure of compression, the latter was desisted from, either because the tumour had very greatly increased, or there had been great œdema of the limb, or the patient was worn out by want of rest, it is manifest that there must have been compensating circumstances which prevented the mortality from being higher than it was. These cases were in a much less promising state ostensibly at the time of the operation than those in which primary ligature was practised; and yet we find that their mortality was less. The explanation of this is doubtless to be found in the circumstance that the trial of compression, although it might have been hurtful in other respects, had conferred a great benefit in opening up the collateral circulation, and thus preventing the risk of gangrene after ligature. Out of 10 cases of primary ligature of the femoral, three died of gangrene, whilst out of 22 in which ligature followed a trial of compression, only two ended fatally from that cause. It is evident, therefore, that compression has its uses when considered not as a means of cure in itself, but simply as a preparatory measure for the application of a ligature. The fatal nature of gangrene when it does occur, is sufficiently shown by a glance at the following table of amputation cases, in which it will be seen that all the cases severe enough to require amputation ended in death.

Amputation cases.	Number.	Recovered.	Died.
For gangrene after ligature (no compression) . . . . .	1	—	1
For gangrene after ligature after compression . . . . .	2	—	2
For gangrene after compression (no ligature) . . . . .	1	—	1
Tumour threatening to give way after compression; no gangrene; no ligature . . . . .	3	3	—
Total . . . . .	7	3	4

*Indications for guidance in future cases.*—1. To have two compressors from the first in constant readiness, and use them alternately.

2. To employ the pressure by preference over the brim of the pelvis where the vein and artery lie side by side, and the latter may be compressed without the former.

3. To be very particular in removing all hair from the skin of the part, to dust it well with flour, and use every precaution for preventing excoriation. With this view it may be well, as suggested by Mr. Paget, to harden the skin by the use of a bichloride lotion for a few days before beginning the treatment.

4. To load the patient's blood with fibrin by limiting his diet to solid food as much as possible. This should be attended to before beginning the treatment. He should be purged, allowed to eat freely of meat, but to drink only the least possible quantities. The drink allowed should be diuretic.

5. The aneurismal sac itself should be supported by the pressure of a soft pad or an air-cushion. If solidification be unduly slow, it may even be justifiable to disturb and break up the coagula by forcible manipulation, in the hope of thus affording irregular projections in which the deposit of fibrin would take place.

39. *Deligation of the Abdominal Aorta for Aneurism of the External and Common Iliac Arteries.* By Mr. SOUTH, Senior Surgeon to St. Thomas's Hospital.—Unquestionably the operation of tying this great vessel is one of appalling magnitude, and so rarely is it adopted, that we may hail it as an event in the annals of surgery whenever it is done. This was the celebrated operation of Sir Astley Cooper, which in his day created an interest of the most intense kind in the mind of every surgeon. It has not hitherto been selected in the cases that have been recorded, unless as a last resource, and justified by the most trying and urgent circumstances. Sir Astley Cooper was the first surgeon who applied a ligature to the aorta in the living subject—upon a porter, aged 38, at Guy's Hospital, in 1817. This case will ever stand as one of the most remarkable in the annals of surgical science. His patient survived forty hours. He made an incision three inches long in the linea alba, giving it a slight curve to the left, to avoid the umbilicus; one inch and a half was above, and the remainder below the navel. The peritoneum was then cut through, and, by scratching with his nail at the root of the mesentery, he was enabled to insulate the artery and carry a thread round it.

A precisely similar operation was performed by Mr. James, of Exeter, whose patient survived three hours and a half. In a third example of ligature of this great vessel, at the Cape of Good Hope, Dr. Murray tied it, without opening the peritoneum, making his incision from the jutting extremity of the tenth rib, continuing it downwards about six inches, and curving backwards to an inch from the upper front of the hip-bone. The aorta was easily reached, the peritoneum being separated with the flat of his hand from the internal iliac and psoas muscles. His patient survived twenty-three hours after the operation. A fourth case is recorded [see this Journal for Oct., 1853, p. 508], the operation being performed at Rio Janeiro, by Dr. C. B. Monteiro, the patient surviving till the tenth day, when he died from secondary hemorrhage from a small opening on the left side of the vessel immediately above the ligature. Mr. South's makes the fifth case, with a survival of forty-three hours. Monteiro's case, therefore, was the most successful. Three out of the five have been done in England—the first and the last at the Borough hospitals, where the preparations are to be seen in their respective museums.

The following were the forms of aneurism in the five cases for which this formidable operation was attempted: 1. Aneurism extending four inches above and as many below Poupart's ligament; affecting the left iliac artery. 2. Aneurism of the external iliac artery. 3. Very extensive iliac aneurism. 4. Spurious aneurism of the femoral artery, formed by the bursting of that vessel; a large swelling occupying a great portion of the right under part of the belly. 5. Aneurism of the external and common iliac arteries, occupying a very considerable portion of the right half of the abdomen.

The late Mr. Guthrie held that it is quite unnecessary to tie the aorta in any case, because, in an aneurism of the external or internal iliac arteries, the common iliac on the diseased side can always be got at—and if not there, yet on the healthy side—for the purpose of carrying a ligature around it. In these views the late Samuel Cooper coincided with Mr. Guthrie. If these cases are analyzed, it will be found that this operation was justifiable in this instance,

as in Mr. South's patient only did the tumour extend absolutely pretty close up to the bifurcation of the trunk of the aorta; and to so great a magnitude had it arrived, that it would have been next to impossible to have tied the common iliac above the aneurism. This can be seen by a careful examination of the specimen in the museum of St. Thomas's Hospital. Several consultations were held by Mr. South with his colleagues on the urgency of the case, and the question was anxiously considered as to the propriety of the operation, and we believe most, if not all, inclined towards giving the poor man the benefit of the operation. In Sir Astley's case, the operation was a sort of forlorn hope, because the patient was reduced to the very point of death by hemorrhage from an iliac aneurism. In Mr. South's this was not so; but the symptoms were becoming so urgent from other causes, that a suddenly fatal result might at any moment occur; immediate interference, therefore, became a matter of actual necessity. It is hardly possible to expect a permanently successful result from the operation, but circumstances may arise to justify its performance; thus prolonging life for a few hours or days, and giving the patient a little time to settle his worldly affairs.

CASE.—On the 21st of June, Mr. South ligatured the trunk of the abdominal aorta, a little above its bifurcation, for a large aneurism of the external and common iliac arteries of the right side, in a strong, healthy, and apparently robust young man, aged twenty-eight years. The aneurismal tumour filled the right iliac and lumbar regions, and occupied a considerable portion of the right half of the abdomen, rising above the umbilicus, nearly as high up as the cartilages of the ribs, and extending close to the median line. Pulsation in the tumour could be felt with great difficulty, but by the stethoscope a very distinct aneurismal bruit could be heard; sensation was almost completely lost in the whole of the right leg, in consequence of the pressure exercised by the tumour on the nerves emerging from the pelvis on that side. The aneurism had existed for some months, and the young man had been an inmate of St. Thomas's Hospital for the past few weeks. The early history of the case was somewhat obscure, but he had been subject to employment of a very laborious and fatiguing kind. During his stay in the hospital it had increased rapidly in size, and was extending in every direction; it became necessary, therefore, to have recourse to surgical measures without delay. The question of tying the common iliac was discussed by Mr. South, Mr. Green and his colleagues, Mr. Solly, Mr. Simon, and Mr. Le Gros Clark. The uncertainty as to whether the common iliac was involved, and also the difficulty of getting at it, from the large size of the tumour, induced Mr. South to select the operation of deligating the aorta, which was done with the assistance of his colleagues, in the presence of a large number of students from the various London hospitals, and many eminent members of the profession.

The left side of the abdomen was opened by an incision, commencing a little above the anterior superior spinous process of the ilium, and extending upwards to the cartilage of the tenth rib. The various intervening structures were severally cut through until the peritoneum was reached, which membrane was carefully raised by Mr. Green with his hands, and the wound kept open, whilst Mr. South passed a ligature around the aorta, from the right to the left side. There was very little time lost in the performance of this highly important operation, which was effected in a very beautiful and satisfactory manner, in consequence of the extremely quiet condition of the patient, who was completely under the influence of chloroform.

This was done at 2 o'clock on Saturday, the 21st of June. The young man went on remarkably well after it; but he died at 9 o'clock on the morning of Monday, the 23d, having survived the operation forty-three hours. At the autopsy, the tumour was found to be a false and diffused aneurism, depending upon disease of the coats of the iliac artery, with, we believe, laceration.—*Ranking's Abstract*, vol. xxiv., from *Lancet*, July 12 and Aug. 23, 1856.

40. *Ovariectomy*.—At a meeting of the Medico-Chirurgical Society of Edinburgh (Dec. 17, 1856) Mr. Edwards read an account of a case in which he had performed ovariectomy. At the close of the discussion to which this paper

gave rise, the President, Prof. MILLER, made the following remarks: "To practical men, it was a step in advance to have it settled by mutual agreement, and by the very decided admission of the highest authorities, among those who might be considered to represent the *operating* side of the question, that the cases suitable for the operation were very few indeed—most rare; and that in these alone, the knife was warrantable. He could very well conceive of such cases. The postulates required were the following: 1st, No hope by any other treatment, and death inevitable at an early period otherwise; 2d, reasonable expectation of success, by operation, in all the circumstances; 3d, an accurate diagnosis as to the existence of ovarian disease, as to this being more or less solid in structure, as to its non-adhesion to the parietes, and as to its being attached by a narrow peduncle; 4th, the patient intelligently aware of the nature of her case, and of the risk of the operation, and, notwithstanding, anxiously and urgently resolved on its performance. The difficulty obviously lay in the third postulate. How is such accuracy of diagnosis to be obtained? He could conceive of such cases; but he had never met with any, and he hoped he never would; for he was bound to confess that his 'instincts' were all against such operations, and it was a positive relief to him to be assured by Dr. Keiller, that he would be specially exempted from all responsibility in relation to cases coming under that gentleman's care. As to the performance of the operation, it was simple enough. The only difficulty and nicety lay in dealing with the peduncle. It had always seemed to him a most unsurgical proceeding to throw a ligature around such a mass within the abdomen; necessitating peritonitis at that point, endangering phlebitis, and occasioning the separation of a considerable slough, with the pouring out of the irritating products of suppurative inflammation into the peritoneal cavity. It was well to make a kind of circular amputation of the peduncle in the first instance; to divide the peritoneal investment all round, and to reflect it back so as to leave that membrane wholly untouched by the ligature; also, to bring the stump, when tied, to the external wound, and retain it there, if possible, so that its inflammatory products may escape externally. These precautions had already been adopted by other operators; but, as suggested by Mr. Edwards, there seemed to be room for further improvement in this direction, viz., completing the amputation by the knife, tying the arteries separately, and dealing with the veins by temporary pressure as elsewhere. Were such treatment of the peduncle found satisfactory, on the score of bleeding, obviously the risk of the operation would be greatly diminished. A good deal had been said about 'surgical instinct.' He had no great faith in that; but he had great respect for 'surgical experience.' He never met a patriarch of the profession, but he sought an opportunity of benefiting by his experience, especially as to operations. He found that there was a class of operations, in regard to which the old men, in their retrospect, regretted that they had not performed them more frequently—the operation for hernia, for example. And there was another class—such as excisions and amputations of malignant diseases—in regard to which, their regret was that they had operated as often as they had done. He much feared that ovariectomy would be found to come very decidedly within the latter class—perhaps being denominated, by an almost warrantable mal-apropoism, *abominable*, rather than *abdominal* surgery."—*Edinburgh Med. Journal*, Feb., 1857.

41. *Is Ovariectomy Justifiable?* By J. MATTHEWS DUNCAN, M. D., &c.—The question, whether ovariectomy is or is not an operation that should be resorted to for the cure of any class of cases of ovarian dropsy, has been recently the subject of renewed discussion in the Medico-Chirurgical Society of Edinburgh. My own opinion was there stated,<sup>1</sup> to the effect, that although individual cases might possibly occur, where resort to the operation was justifiable, yet that there was no class of cases of the disease for which it was a suitable therapeutic measure. The observations, however, made by myself, in that Society, require further enforcement and enlargement.

<sup>1</sup> See *Edinburgh Medical Journal* for February, 1857, p. 752.

First of all, it is easy to show that the defenders of the operation in that Society have involved themselves in a dilemma. They tell us that the operation is as justifiable as any of the great operations of surgery. They sanction and commend the practice of Dr. Clay, as a whole. They admire and hold up the results of his numerous operations. They colour their descriptions of the disease with as much danger as they can make adhere to it. They do the same in regard to the alternative palliative treatment by tapping. These gentlemen, pursuing this line of argument, are in extensive practice. Taken together, they are ever seeing, I believe, as many cases of ovarian dropsy as any equal number of obstetricians that ever met to defend ovariectomy. And yet, incredible to relate, they have only one case of ovariectomy to show for years of experience in the treatment of this disease. More incredible still, the palliative treatment, which they vilify and asperse, is the treatment which, it is notorious, they adopt. The position of my friends Dr. Clay and Mr. Edwards is easily admitted as reasonable. They believe ovariectomy is a good and justifiable treatment in a certain class of cases of this disease; they resort to it and recommend it to their patients. The defenders of ovariectomy who strove in that Society to overthrow my reasoning in regard to it, act as I do. They have to explain how it is that their practice is different from their profession. At present they are in a position which, for character's sake, they must desert; for they defend an operation as a good and salutary measure, as saving life, and yet they do not perform it, nor do they get their surgical friends to do it for them.

It would be a difficult undertaking to *demonstrate* that ovariectomy is an unjustifiable operation, with the imperfect data now in our possession. In the sequel, it will be seen that I refer all such difficult and complicated practical questions as this to the arbitrament of professional opinion, as the ultimate resort. It is well known that professional opinion is, generally speaking, very decided against the propriety of ovariectomy, as a remedy in ovarian dropsy. But, on whatever side professional opinion might be found, it is not incumbent on the opponents of ovariectomy to do more than show how all the arguments in defence of the operation are successfully assailed. It is, however, the manifest duty of the defenders of the operation to do all they can to acquire for it the position they desire.

In framing defences in future, ovariectomists must, to use an idiom, make the operation speak for itself. The statistical arguments adduced, in form of comparisons, of ovariectomy with other recognized operations, have two great sources of weakness. For, firstly, as we shall immediately point out, the statistical arguments are conducted with such looseness and disregard of logic as to destroy their value. Secondly, if the statistical arguments were well established, it could justly be objected that they prove nothing, unless it be admitted that the objects of comparison were themselves justifiable. If, for example, the statistical comparison between a hundred ovariectomies and a hundred amputations of the thigh were made to yield a result favourable to ovariectomy, it would still have to be shown that the amputations were justifiable. The fact that one operation is as justifiable as another, does nothing towards showing that either one or the other is itself essentially good.

All that we can, with our present data, perform, is merely to make an approximation to an argumentative solution of the question of ovariectomy. Before a conclusive proof could be had on either side, it would be necessary to settle many points in surgical ethics which have not yet been mooted in this question, but which some statisticians assume in their own favour. Some of these I shall here merely raise, without saying more than that I am inclined to think they must be answered in the negative.

Can a surgeon or physician, with safety or advantage, bring distant statistical arguments to the bedside of a patient? Is not every case rather a matter of separate study, and to be treated by the clinical physician or surgeon apart from difficult questions of the application of statistics to therapeutics, and the results of such statistics?

Can a surgeon or physician ever dare to reason statistically as follows? I

have four cases, all destined to an early death. I shall subject one patient to quick destruction in order to secure for three the ordinary chances of life?

Can a physician or surgeon ever dare to reason statistically as follows? I have four patients, all of whom may live to the natural term, but will probably die within six years. I shall subject one to quick destruction, in order to secure for three the ordinary chances of life. Has any man a right so to deal with human life?

Authors, in general, treat this subject in a curiously inconsequent way. For instance, in the Medico-Chirurgical Society, Dr. W. T. Gairdner justly pointed out the two aspects, one of which most cases of ovarian dropsy presented. In the one, the circumstances of the case were consistent with continued life, and some degree of comfort; and the operation was too dangerous to be recommended. In the other, the disease was far advanced, the patient's health much injured, and the whole constitution in a state very unfavourable for the operation. But Dr. Rigby, a defender of ovariectomy, in his interesting work recently published, points out, in a similar way, the two aspects of cases of ovarian disease, and yet recommends the operation. Dr. Gairdner had never seen a case suitable for ovariectomy—a circumstance quite in accordance with his statement. Dr. Rigby approves of the operation, but so encumbers with conditions the two classes of cases of ovarian disease—1. The generally healthy and comfortable, and unsuited for operation; and, 2, the aggravated cases unsuited for operation—that none are left for the surgeon's knife.

Another instance may be given from the discussion in the Society. Dr. Simpson then said that “he particularly doubted whether surgeons were justified in so often subjecting patients to a great chance of speedy death, from a severe surgical operation for the removal of a disease which might still allow of the continuance of life for many months or years, before it would probably, in the common course of the malady, reach a final and fatal termination.”<sup>1</sup> These remarks are, I believe, very just, and the doubt very proper. But, then, Dr. Simpson has no such remarks on ovariectomy, and no doubt about it!—an operation to which the remarks and the doubt were more appropriate than to any other.

Another illustration is too apposite to be passed over. Dr. Simpson supposes, that Dr. Southam's table of twenty cases of tapping, he proves that one in every five first tapplings is fatal. In his late speech he said he had had about thirty cases of tapping followed by injection of iodine; none of these was fatal, except one which he supposes died of the tapping, not of the injection. He is hence confined to the absurd conclusion, that while a first tapping kills one in five, tapping, followed by injection of iodine, has no evil results!

*The loose and illogical use of statistics.*—Statisticians are justly proud of the value of the numerical method of inquiry, and can point to many proofs of its uses and advantages. But, unfortunately, the opponents of statistics can be at no loss to find ample evidence of its being a method worthy of little confidence when wielded without sufficient knowledge and care. This has been frequently pointed out by statisticians themselves; and medical philosophers have uttered ominous warnings to their fellow-inquirers not to confide in them on questions of therapeutics such as the one now under consideration; but in vain.

The statistical argument in favour of ovariectomy has been used by Southam, Safford Lee, and with the greatest ingenuity by Dr. Simpson. It was stated, several years ago, at great length in the Medico-Chirurgical Society. It was conducted by comparing the statistics of ovariectomy with the statistics of other operations. Some of the grand errors in that statistical comparison it is necessary to point out.

1. The comparison, if intended to yield results in favour of ovariectomy, or against any other operation, must be confined to those operations, and conducted to a termination. Afterwards the like may be done in regard to some other surgical operation, and conducted to a termination. Instead of this the statistics of all surgery are rummaged for arguments in favour of ovariectomy, and

<sup>1</sup> Edinburgh Medical Journal for February, p. 757.

a triumph proclaimed in its honour, because all the difficulties and dangers of the most severe operations are not to be found in connection with it. Is it desired, for instance, to extenuate the danger and mortality of ovariectomy? Then the statistician easily adduces operations with a greater average fatality—amputations of the thigh (and of the arm!)—ligature of the subclavian artery, or of the innominate. Is it desired to screen the difficulties of ovariectomy? Then the difficulties of lithotomy, of tying arteries, are adduced, &c.

2. For the purposes of useful comparison, it is necessary that the objects compared have their prominent characteristics in common. Any essential difference must, at least, be pointed out. But instead of this we had, for instance, ovariectomy compared to amputation at the hip-joint, or of the thigh. Ovariectomy need not be described, it has a distinct individual character. But amputations are of very different kinds of classes, and these, for all useful purposes, totally unknown, and certainly undescribed by the statistician. The comparison might justly be made in regard to mere mechanical circumstances of the amputation—thus, seventy amputations at the hip-joint have been done, and so have seventy ovariectomies! In carrying the comparison further, the statistician is but a blind leader of the blind. The average of deaths after ovariectomy is less than after amputation at the hip-joint. This proves nothing in any direction. Were the amputations for chronic disease like ovariectomy? It is not known. Were the amputations performed for accidents in themselves almost necessarily fatal? It is not known. Were they for malignant disease? It is not known. Were they for gangrene of the limb after fever or ligature of an artery? It is not known. In short, the whole comparison is done in total darkness.

3. For the purpose of a useful comparison, the circumstances of the operation must be nearly alike. But instead of this, the statisticians place ovariectomies, done in the most favourable circumstances, watched with the tenderest care, against operations done in hospital, on young and old, on temperate and intemperate, &c.

4. For the sake of justice, it is necessary to compare the statistical results with the antecedents of the operations. For a greater fatality in amputations than in ovariectomies is quite consistent with the amputation being, in spite of that circumstance, the more justifiable, and even, in a sense, the safer operation. For amputations may (and very probably) have been all done in cases quickly and certainly tending to a fatal termination; and a small fraction saved may prove a far greater triumph of surgical skill than a larger number, or fraction, saved after ovariectomy. For in the ovariectomies death was possibly far from being near at hand in many, if not most of the cases, while some of the dead might have long survived but for the surgeon's knife.

If statistics are to be used in such a loose fashion as I have described, it may be truly said that by their help no absurdity need despair of evidence. But I proceed to another aspect of this method of advancing medical science.

*The absurd use of statistics.*—When, in the Medico-Chirurgical Society, I pointed out the statistical conclusion, that tapping was fatal to one in every five operated on, as a glaring instance of the absurdities into which statistics allured those who failed to use them aright, I was told that the great mortality in the operation attached itself to firstappings; and this formed the whole justification of Southam's well-known table. Of this table of twenty cases, Dr. Simpson says: "Fifteen of these cases had been recorded by Drs. Bright and Barlow, without apparently any view to such an investigation, and hence afforded the more valuable and unprejudiced evidence. Four of the twenty, or one in five, died from the effects of the first tapping." It is a curious but vain endeavour to conceive how Drs. Bright and Barlow could illustrate the danger of tapping in a valuable and unprejudiced manner because they had no intention of illustrating it at all. The exposing of the real circumstances of this table, and of the arguments founded on it, will form to future inquirers a valuable warning against putting faith in statistics, when used to support any practice whose promoters are struggling for defence.

The table, then, is used by Safford Lee, Simpson, and others to show that the first tapping in ovarian dropsy is a proceeding nearly as dangerous as ovariotomy—that the mortality from it is about one in five. If Drs. Bright and Barlow had published all their hospital cases of tapping, or all their private cases, then we might have had data of some value. But what is the fact? Dr. Bright's paper, from which the table is got up,<sup>1</sup> contains the histories of twenty-four selected cases of ovarian diseases, all of which (with two exceptions) are completed by accounts of the post-mortem examinations. Most of them were women coming into hospital with the disease in an advanced stage. These cases were selected by Dr. Bright, and wisely so to illustrate the pathology and terminations of the disease. Some of them were cases of malignant disease. It is almost too ridiculous to be believed that these cases should be used in reference to the question of first or second tapplings.

Of the four so-called fatal cases of first tapping in Southam's table, three are drawn from Dr. Bright's able paper in *Guy's Hospital Reports*. Let us examine them briefly:—

1. In Dr. Bright's words: "She could walk from Peckham to London and back, and she was fond of dancing. June 18th, 1831: She was tapped in the middle line, about an inch below the umbilicus; a few drachms only of fluid came away, when a little cyst protruded, almost like an hydatid, but it was attached within, and was returned; a small quantity of blood escaped. Within an hour or two of the operation she began to experience collapse, and died within twenty-four hours." This is evidently an example of death from tapping. Dr. Bright does not say it was a first tapping. It is not unimportant to observe that it is quite an exceptional case, on account of the circumstances of the hydatid and the escape of blood, &c. &c. Moreover, it is very doubtful if palliative tapping includes cases of the operation on a woman who was a strong walker and fond of dancing. The title of the case makes it evident that it is related because it was fatal after the tapping.

2. This case is also selected in order to illustrate death from tapping. Dr. Bright does not say whether the fatal tapping was a first operation or not; the statisticians assume it.

3. This case was, according to Dr. Bright's account not one of a first tapping, for he says, "the fluid in the cyst differed entirely from that which had been drawn off two months before." The case was not under Dr. Bright's immediate care, and death was the result of the first of an intended series of tapplings to be tried, after a peculiar method, as an experiment.

4. To make up the four fatal cases, one is taken from Dr. Barlow's paper.<sup>2</sup> In this case, it is not stated whether the tapping was a first operation or not. Mr. Abernethy, writing of this case, said, "I do not remember a diseased ovary advancing with such continued irritability or disposition to inflammatory action." Dr. Barlow's description is as follows: "Enlargement proceeded rapidly, but fluctuation became indistinct, and at length ceased to be felt. Much suffering was endured, which terminated in death towards the end of October. A short period before death, an attempt was made to relieve the oppressive distension by tapping, but unsuccessfully." The perusal of this case leaves the reader without the slightest ground for thinking the tapping was the cause of death; quite the reverse. Dr. Barlow's whole paper consists, like Dr. Bright's, of cases so selected as to illustrate points in the pathology of this interesting disease.

But the climax of absurdity is reached in this argument, for I find that Dr. Southam's table of twenty cases is not one of first tapping. Of the twenty, eleven had been repeatedly tapped. Nine only are said to be cases of first tapping. They were all followed by death, and it will puzzle the wittiest to explain why the four cases above described were selected from the whole twenty, to strike an average of one death in every first five tapplings. If the table proves anything (which I doubt), it proves that every first tapping is fatal! and that after tapping, a woman still must die some time or other!

<sup>1</sup> Guy's Hospital Reports, vol. iii.

<sup>2</sup> Transactions of the Provincial Medical and Surgical Association, vol. iv.

I need say no more, for enough has appeared to show that the bases, superstructure, and uses of these statistics are not only worthless, but ridiculous. It is not my purpose at present to discuss the mortality of tapping. No doubt it has a mortality; so has phlebotomy, says M. Velpeau.

In the discussion so often alluded to, more than one speaker disparaged what was called, very appropriately, "surgical instinct." This phrase was used to indicate the opinions of great and wise practical men, arrived at none the less surely because, to some extent, by a series of logical steps which they cared neither to investigate nor discover. The disparagement was thrown on their own profession and on themselves. It was a self-destructive act. None of them made a good defence of ovariectomy, and if they had fallen back on their opinions, would have been in some sense impregnable. The opinions of great and wise practical men are, and will be, the great resting-place of the profession and of the public. These men are almost all inimical to the operation under discussion. Many of them flatly repudiate it a place in regular surgery. Others, like Professor Miller, arrive at the same result by encumbering it with impossible conditions.

Casting contempt on surgical instincts, what have the defenders of ovariectomy to offer us instead? Nothing but flimsy and fallacious arguments of the kind considered in this paper.—*Lancet*, Feb. 28, 1857.

42. *Iodine Injections in the Treatment of Ovarian Dropsy.*—Prof. SIMPSON, in a recent discussion at the Medico-Chirurgical Society of Edinburgh (Dec. 17, 1856) stated that, "He had now employed these injections in twenty or thirty cases, with varying results. In the first operation, the first, he supposed, in which it had been used in Great Britain, the tumour is still present, but never has again increased to any great size. Sometimes the injection in his hands had proved quite successful. Lately, he saw two patients on whom he had operated three years ago. In one of these cases, a young person of twenty or twenty-two, who had been once or twice tapped before, the dropsical tumour was of very great size, and the patient's health and strength were rapidly breaking down when the iodine injection was had recourse to. There has been no return of the dropsy, and the patient is now quite well and strong. He lately saw an elderly patient, upon whom he had operated about the same time, with a similar successful, and apparently permanent result. In other cases, the iodine injection had been completely or partially successful—partially in several, inasmuch as it had obliterated the largest cyst in the multilocular tumour, but had not prevented the remaining smaller cysts from growing and developing. In some, on the other hand, it had so far entirely failed, that the cyst, operated on and injected, had again refilled; but perhaps, as a general rule, not so rapidly as when no injection was used. The failures were, in special instances, perhaps traceable to the iodine being too much diluted by the fluid left in the cyst; to the quantity of iodine used being too small, or too weak; to care not being taken to bring it in contact with the whole interior of the cyst, and other possibly avoidable causes. No doubt it was a valuable means in some cases, especially where the dropsy was principally limited to one or two large cysts; and no doubt it would fail in others, especially where the tumour had several large cysts developing simultaneously. The iodine injection was seldom attended with much pain, or with any severe local or constitutional irritation. Out of the twenty or thirty cases in which he had injected ovarian cysts with iodine, in only one instance had death subsequently occurred, namely, in a patient to whom he was called by Dr. Monroe, of Dundee. The dropsical distension of the abdomen in this patient was, before tapping, greater, he believed, than he had ever before witnessed, and the iodine injection was used at the first tapping. Was the fatal result attributable to the tapping or the injection? He had now used the iodine injection so often, without any marked local suffering or constitutional reaction, that he was inclined to doubt if the iodine were in any degree blamable; while he had so frequently seen danger and death follow first tapplings, and where nothing but tapping was used, that he believed the result was to be ascribed to the paracentesis, and not to the injection."—*Edinburgh Med. Journal*, Feb., 1857.

43. *Interstitial Fibrous Tumours of the Uterus*.—M. NELATON is strongly averse to operative interference in these cases. We should oppose the hemorrhages as they arise by various means; keep the patient's strength, and await the period of cessation of menstruation. This advice is founded upon his abundant experience acquired while surgeon to the Salpêtrière; which proved to him that this description of tumour, once the crisis passed, usually remains stationary, the hemorrhages ceasing, and the women living long without being sensibly inconvenienced by the tumours.—*Gaz. des Hôpitaux*, No. 91, 1856.

44. *Tracheotomy in Croup*.—Dr. FULLER read to the Royal Medico-Chirurgical Society (Jan. 27, 1857) the particulars of five cases of inflammatory croup, for the relief of which tracheotomy was performed in St. George's Hospital. In each instance, the operation was deferred until the last stage of the disease, when every remedy had failed, and death was imminent. In two of the cases the operation was successful in saving life; in three it failed of its object. Four of the patients coughed up a considerable quantity of mucus or false membrane through the artificial opening, and received immense relief from the operation; while the fifth was nearly moribund at the time of its performance, and expired almost immediately afterwards. Dr. Fuller remarked that the success thus obtained is highly satisfactory, and that, unless these recoveries are quite exceptional, tracheotomy ought to be had recourse to when other remedies have failed. He admitted, however, that the inferences derivable from such a limited number of cases are not of themselves sufficient to determine the propriety of the operation; and he therefore proceeded to discuss the question generally, and endeavoured to bring together such facts as should lead to a decision—1st. As to whether the operation of tracheotomy is justifiable in any case of croup? 2d. If so, under what conditions, and at what stage of the complaint? 3d. Whether the existence of certain symptoms or other circumstances ought not to cause us to hesitate in recommending its performance? 4th. Whether any, and what medical treatment is necessary after an opening has been made into the trachea? With a view to a correct appreciation of the subject, Dr. Fuller began by referring to the difference existing physiologically and pathologically between idiopathic inflammatory croup, and the diphtheritic form of the disease which commonly prevails in France, and he pointed out that the objection usually urged against French statistics of tracheotomy in croup—viz., that diphtheritic cases are much more favourable for the performance of the operation, than are the croup cases usually met with in this country—has no foundation in fact. He called attention to the circumstance that diphtheritis is often accompanied by glandular swellings in the neck, and œdematous fulness of the throat, whereby the operation is rendered much more difficult than in inflammatory croup, and that the type of the accompanying fever is so low as often to destroy life, quite independently of any affection of the air-passages. He then proceeded to show, by reference to 483 cases in which tracheotomy had been performed for the relief of croup in France, that the operation has proved eminently successful in the hands of French surgeons; and he reminded the Society that, inasmuch as the condition of the throat externally, and the nature of the accompanying fever in diphtheritis are by no means favourable to the operation, the success which has attended it can be explained away only on the supposition often put forward by English writers, that in France the disease seldom extends into the trachea and bronchi, and is rarely accompanied by bronchitis or pneumonia. The fallacy of this supposition he then proceeded to demonstrate by reference to the writings of French authors, and to the recorded results of the *post-mortem* investigation of 311 fatal cases of croup in France, and he showed that in regard to its pathological effects, diphtheritis, when accompanied by croupal symptoms, does not, as compared with inflammatory croup, present any greater prospect of success for the operation than it does in the character of its accompanying fever, or the condition of the throat externally. Having thus established the success of the operation in the hands of French surgeons, and the absence of any special cause for that success, Dr. Fuller proceeded to inquire into the circum-

stances which have led to the disrepute of the operation in England. These he traced to theoretical objections founded on the pathological results of the disease, to the almost unanimous and unqualified condemnation of the operation pronounced by successive English writers, and to the ill success which had attended the operation in the few cases in which it had been practised prior to the publication of their respective works. He insisted, however, that theoretical objections are of little value as compared with the results of practical experience, and he therefore appealed to that source for information on the subject. He showed, by reference to statistics derived from the Hôpital des Enfants Malades at Paris, that whereas out of the first hundred cases operated on at that institution, one only recovered, a more extended experience in the mode of performing the operation, in the precautions requisite to insure success, and in the carrying out of the necessary after-treatment, has led, since 1850, to the saving of 47 out of 215 cases; or, in other words, to the rescuing from death of nearly one out of every four patients. He argued thence against those persons in this country who condemn the operation simply because it is opposed to their preconceived notions, or has proved unsuccessful in the few instances of which they are personally cognizant. Further, he showed that even in Great Britain the recorded results of the operation afford a fair amount of success. Twenty-two cases only have been recorded in England, and in no less than eight of these, life was saved by the operation; and although, doubtless, many unsuccessful cases have occurred which have not been placed on record, still Dr. Fuller argued that if life can be saved by operative interference, even in a small proportion of instances, the chance afforded by the operation ought not to be withheld where all other means have failed, except under some peculiar circumstances. Dr. Fuller next proceeded to dispute the propriety of having recourse to tracheotomy at an early stage of the disease. He showed that patients in the second stage of croup will sometimes recover under proper medical treatment, even when those symptoms appear to be desperate; and, on the other hand, that the theoretical objections commonly urged against deferring the performance of tracheotomy until the third stage of the disease, have no foundation in fact. In proof of this, he appealed to the results of the five cases which have fallen under his own observation at St. George's Hospital, as also of many of the other cases on record; and, further, to the corroborative evidence afforded by the recent change of opinion evinced by MM. Trousseau, Bretonneau, and others who formerly were most zealous in their advocacy of an early performance of the operation, and who now defer it until a much later stage. Dr. Fuller condemned the indiscriminate performance of tracheotomy in croup. So much danger and difficulty attends the operation, even in favourable cases, that he considers it almost necessarily fatal if the patient is of very tender age, or has been out of health prior to his attack of croup; if his illness has been preceded by pneumonia or severe bronchitis; if he is suffering from any exanthematous or other disorder; and, further, if he is in such a position of life that his parents are unable to secure for him proper skilled attendance night and day. He spoke of the gradual sinking sometimes observed in fatal cases, many hours after the operation, whilst all the symptoms are progressing favourably, as analogous to the sinking which occasionally takes place, under similar circumstances, in persons who have been partially asphyxiated; and he attributed it in part to pulmonary collapse, and in part to nervous exhaustion consequent on the long-continued struggles for breath. He referred to the use of tracheal tubes of too small a calibre, or of improper construction, as one great cause of the failure of the operation; and, as another, to the neglect of proper after-treatment, or to the administration of improper remedies. He pointed out that, in almost all the fatal cases on record, wine and brandy had formed the chief, if not the sole medicaments; whereas, in almost all the successful cases, calomel, antimony, and the measures which are considered useful before the operation, were steadily persevered in afterwards; and he called attention to the fact, that the depression which accompanies the last stage of the disease, in which alone he recommends the operation, is the depression of asphyxia, which is to be relieved by the free admission of air, and not by the administration of stimulants.

He recommended that the trachea tubes be made somewhat larger, shorter, and less curved than those in common use; that the outer canula be shorter than the inner one, and that both be of the same diameter from one end to the other, but that the outer one, instead of being made of one piece as at present, should be divided longitudinally into two blades, flattened towards their inferior extremity, so as to come into close apposition, and to admit of easy introduction into the trachea. These blades should be made to open like the blades of a dilating bivalve speculum, so as to admit, when fully expanded, an inner tube of uniform diameter throughout. This arrangement could not only conduce to keeping the inner tube clear of mucus, but would render serious obstruction to the respiration wellnigh impossible, inasmuch as if the inner tube were to be clogged in any way, and the extremity of the outer canula were to be also choked with mucus, the chink existing between its expanded blades would provide a free passage of air immediately on the withdrawal of the inner tube.

Dr. West observed that he must beg to set Dr. Fuller right with reference to the opinions which he, Dr. West, had expressed in the published lectures concerning the operation of tracheotomy. So far from being an opponent of it, he had ventured to dissent from authorities high as Dr. Cheyne and Mr. Porter, and to advocate its adoption most decidedly. At the same time, his own personal experience of the operation, amounting to about ten cases, and that likewise obtained by his colleagues at the Children's Hospital, had not yet afforded a single instance of recovery. At the Children's Hospital every possible attention was paid to the circumstances in which the child was placed after the operation, while its performance was not delayed till the case was hopeless, but was performed comparatively early; and appropriate antiphlogistic treatment, including the employment of mercurials, was sedulously continued afterwards. He still believed that the difference in the character of the disease in England and France had much to do with the different results of tracheotomy in the two countries; and his own experience was that the cases of croup in this country, in which the affection of the larynx was unattended either by bronchitis or pneumonia, were a minority and a very small minority of the total number. With reference to the suggestion as to the importance of the canula being of larger size than that which is frequently employed, it was no doubt a matter of great moment; but it had already been insisted on, and the grounds for it fully explained, by M. Trousseau, of Paris, whose remarks on the subject were quoted by the speaker.

Dr. Webster remarked that the age of children had an important influence on the result of tracheotomy in croup. The successful cases referred to by Dr. Fuller were in girls past the age of infancy. In children of very tender age, the result would be less likely to be satisfactory.—*Med. Times and Gaz.*, Feb. 7, 1857.

45. *Gunshot wound of the Femur.*—Dr. DAVID GREIG states (*Edin. Med. Journ.*, Jan., 1857) that “during the late war no wound has proved so fatal, no wound so difficult to treat and bring to a successful termination, as gunshot fractures of the femur. Both actually and proportionally to the number of wounded, this lesion has been the cause of a greater mortality than any other, not even excepting wounds of the chest or abdomen. The difficulty of treating this fracture arises from many causes, but the chief of these may be said to be the difficulty of obtaining complete rest of the limb, together with cleanliness and the free discharge of pus, which necessarily follows the extensive comminution which a rifle bullet produces on a large bone like the femur.

“With an opening on the internal or anterior surface of the thigh, this fracture might be comparatively easily treated, but, in general, there is a posterior opening, and very often one on the external surface, which would be pressed upon and closed up by a long splint. Wounds and fractures occurring in military practice, are, of course, to be treated like those occurring in civil life, according to the principles of surgery; but, in the former more than the latter, is required readiness and tact to employ, and turn to the best advantage, such simple appliances as may be at hand. Thus, although a compound

comminuted fracture of the femur is to be treated exactly the same on the field as in a civil hospital, still, in the former case, mechanical appliances are very often sadly wanting, and the surgeon will be often obliged to use his own ingenuity to obtain substitutes.

"As perfect rest is of the first importance in treating such a formidable wound, it has not unfrequently appeared as if the constant removal of the dressings and bed-linen, which was required for the sake of cleanliness and comfort, notwithstanding all the care which could be used, often produced a state of exhaustion which seriously retarded, or even frustrated, the cure. A great want has always been felt for a simple and efficient apparatus, whereby the dressings of a compound fracture of the thigh could be changed often, without moving the fractured limb or fatiguing the patient. This I attempted to accomplish in a few cases of the kind which I treated, and with what I consider fair success. An outline of two or three of these cases may not be uninteresting, and may assist those who are called upon to treat such cases.

"The first case of fracture of the femur, which attracted my attention, was one under my own care, with which I had a great deal of trouble, and from which I derived no small amount of instruction concerning the nature of these fractures.

"J. B., æt. 34, a private in the Grenadier Guards, was wounded at the battle of Alma, on the 20th Sept., 1854. Was in the act of advancing when he was struck by a rifle ball, which entered on the outside, between the lower and middle thirds. Little blood was lost—he felt as if struck by a stick. He reeled a short distance in front of the line, and fell. Four days afterwards, when on board ship, the ball was removed, by making an incision at the opposite side of the thigh. When I got charge of him at Scutari (12th Nov.), he was in a very weak condition—pus was discharging copiously from the wound on the outside of the thigh, and it was with difficulty that the long splint could be kept applied, no union whatever seemed to have taken place—which opinion was confirmed on the 22d, by making an examination while the patient was under chloroform. As the patient was getting every day weaker, the limb was amputated on the 23d, above the seat of fracture. Although still weak, he continued to improve for two weeks, and we had hopes he would do well. Unfortunately hectic fever came on, and he sunk about a month after the amputation. On examination of the limb, the femur was found very much comminuted between the lower and middle thirds, callus had been thrown out, inclosing large pieces of dead bone and part of the ball. The preparation is now in the College of Surgeons' Museum, Edinburgh.

"In this case nature had been favoured by the patient's constitution, and made vigorous efforts at repair. Callus had been thrown out so copiously, that the fracture had almost been united, and copious discharge and irritation, evidently caused by the broken and dead fragments of bone, requiring the frequent moving of the limb for the sake of cleanliness and comfort, had at last reduced the patient so much, that it was merely as a last hope that the limb was amputated.

"Patrick Murphy, æt. 18, private 17th Regiment, was lying on his right side in the advanced trench before Sebastopol on the 16th July, 1855, when he was struck by a conical minie rifle ball, which entered the back part of his left thigh, about three inches below the great trochanter, and tuberosity of ischium, passed obliquely upwards and forwards, and was removed from below the skin, two inches below the pubis, and a little to the left side. He was brought to the regimental hospital about two hours after he had been wounded. He was quite calm, did not complain of much pain; skin cold and moist. It was easily seen that the femur was fractured. There was considerable shortening of the limb, little crepitation, and although there had not been much hemorrhage at the time, blood was now oozing from both wounds, in small quantity. He had emptied his bladder about ten minutes before he was wounded. The bullet was of the common conical solid form, but part of it was wanting, and it seems to have been cut in passing through the femur. He was put to bed, a long splint applied, water-dressing to the wound, and 25 drops of sol. morph. mur. given to him.

"17th. Passed an easy night. Bowels not moved—made water easily and without pain. Thigh and lower part of abdomen slightly swollen.

"18th. Feels very comfortable. Bowels have been freely opened.

"19th. Limb not much swollen. Wounds look well—discharge very slight. A long splint, with foot-board, was put on to-day, and leg bandaged up to above the knee. It is difficult to keep the perineal bandage tight, as it causes him much pain over the course of the ball, on the anterior part of the thigh, at or rather below Poupart's ligament. This was partly remedied, by two pads, placed on each side of the course of the ball, and the perineal bandage over them.

"August 1. During the latter part of last month he has been going on as well as could be expected. He was kept on spoon diet at first, but is now getting a more nourishing one, with wine. He is not much reduced in strength, but there is now a good deal more discharge—more especially from the lower wound, which is difficult to dress. Upper wound nearly healed—long splint still on, but no union.

"6th. Great difficulty being experienced in getting the lower wound dressed, and the copious discharge removed, he was this day placed on a hair mattress, part of which had been cut out and a movable pad fitted in, below the under opening, allowing the wound to be easily examined and dressed, without disturbing the limb.

"18th. The arrangement adopted on the 6th inst. answers admirably, the copious discharge is easily removed twice a day, without disturbing the limb. The discharge is healthy, the limb firmer, and he still keeps his health.

"30th. The limb was examined to-day, and union was found complete. The discharge is still copious, but healthy. It now all comes from the lower wound; upper wound nearly closed. He is in good spirits, and takes his food well, but is still considerably thinner than he was.

"September 3. The long splint was removed to-day, and the limb supported by a bandage all the way up to the wound. He has a small bed-sore over the sacrum.

"24th. Since last report, patient has not been so well; his appetite is capricious, and he does not relish his food. The discharge from the wound is thinner, and not so healthy. The bed-sore still troubles him. A large abscess has formed above the trochanter major, which was opened to-day, and a large quantity of fetid pus discharged. This abscess does not seem to communicate with the seat of fracture. The limb is bent outwards at the seat of fracture, and is three or four inches shorter than the other.

"30th. There is still a profuse dark coloured fetid discharge from the openings, and the patient is still very weak. An incision was made to-day, down upon the seat of fracture, on the outside of the thigh, in the hope of finding dead bone, but none could be detected. On the 3d October he was transferred, along with the other patients in the regimental hospital, to the general hospital in camp, as the regiment was ordered on the expedition to Kinburn; and when I returned on the 11th Nov., I found that he had died on the 21st Oct., from hectic fever, induced by the discharge. The preparation was in the possession of Dr. Taylor, Deputy Inspector-General of Hospitals, and, I believe, is now in the Museum of the Royal College of Surgeons, London. On examination of the bone, it is seen to be fractured about two inches below the neck. There has been a good deal of comminution, but none of the pieces have lost their vitality. The union was formed nearly at a right angle, very firm, and the remaining half of the ball was found in the fracture.

"Considering the circumstances, this union was, I think, a very good one. If the wound had been such as to allow of the proper application and tension of the perineal bandage, the limb would have been straight, and nearly of the proper length; and if the patient had been a strong man, recently joined from England, instead of a weakly boy, rendered still weaker by over-fatigue, it is probable his life would have been saved. When he was first admitted into hospital, Dr. Crerar, who was in charge of the regiment at the time, and myself, were both inclined for amputation of the limb; but, as all our amputations above the middle of the thigh, here, had proved fatal, we resolved to do our

best to save the patient's life, even although a satisfactory limb could hardly be hoped for.

"When the shaft of a large bone, such as the femur, is struck by a minie rifle ball, it is often surprising what an amount of splintering and comminution is produced. This I have seen to the extent of five or six inches, in the femur. Fractures caused by the conical minie rifle ball are, I think, undoubtedly more severe than those inflicted by the old round musket ball. In all probability this results from the force with which this missile strikes the bone, and from the revolving or screw-like motion, which all rifle balls possess, in their passage through the air. That the minie ball does revolve on its long axis, is a fact beyond doubt. Marks on the surface of these balls, produced by touching or striking other substances on their passage, are all in a spiral direction; and in one case, this was particularly well marked, where a conical ball, passing through a thigh, had touched the femur in passing, and when removed, one side was found flattened—the flattened side passing in a spiral form round the ball. The ball revolving on its long axis does not, however, produce such a lacerated wound, or such an extent of comminution, as when it has touched some object before striking; thereby turning over lengthwise, and altering the axis of revolution from the long to the short or transverse diameter, it may enter the limb or strike the bone when in a 'floundering' condition, or moving in this irregular manner. Mr. Guthrie remarks that—

"After the battle of Toulouse, forty-three of the best fractures of the thigh were attempted to be saved, under my direction and even selection. Of this number, thirteen died; twelve were amputated at the secondary period, of whom seven died; and eighteen retained their limbs. Of these eighteen, the state three months after the battle was—five only could be considered well, and as using their limbs; two more thought their limbs were valuable, although not more serviceable, than a wooden leg; and the remaining eleven wished they had suffered amputation at first.—(*Commentaries on Surgery*, p. 138.)

"If this was all that could be done then, when only round musket balls were used, we need not be surprised at the great mortality nowadays from these wounds. From some statistics, kindly furnished me by First Class Staff-Surgeon, Dr. Home, I have learned the following interesting facts: Among the wounds received by the Second Division of the British Army, at the storming of the Great Redan on the 8th September, 1855, were nine cases of compound fracture of the femur, and eight of these proved fatal; five required amputation, and all died; four had no operation performed, of whom one survived, and he recovered under peculiar circumstances. This man was a private in the 62d Regiment, had been taken prisoner by the Russians, and placed in one of the dockyard store vaults in Sebastopol, which had been turned into an hospital; and for want of appliances, his fractured limb was put up in a most ingenious way, by using bayonet scabbards instead of splints. He was removed to his own regimental hospital two days afterwards, and by careful treatment and liberal diet was so far recovered in five months as to be able to proceed to England. The limb was shortened to the extent of an inch and a half, but the union was firm and complete. It is but right, however, to mention, that this man had escaped all the hardships of the preceding winter, and had only joined his regiment a short time before he received the wound.

"With regard to secondary amputation in cases of this kind, or attempting to save the life when it is evident the limb will not prove a useful one, or when the patient is sinking, I am sorry to say, that of some seven or eight cases that I have seen, none were successful. The first case related in this paper, was one where the man had originally a strong constitution, and had a chance of recovering after the operation. Other cases I have seen, but with always the same fatal result. Cases will occur where primary amputation must be had recourse to; but if there be comminution only to a moderate extent, and if the patient be at all in a good state of health, an attempt ought most decidedly to be made to save the limb, and thereby save the patient's life. In treating these cases, the great difficulty, as I said before, and I have often heard other military surgeons express the same, is to obtain complete rest for

the limb, and, at the same time, manage the posterior or lower wound, so as to allow the free discharge of pus; but I think the hair mattress, with the moveable pad, will remove this difficulty, by keeping the patient clean, facilitating the dressing of the wounds, allowing the pus to flow freely, and, lastly, obtaining complete rest for the limb.

"Besides, the case of the man in the 62d Regiment already mentioned, I know of two or three cases where conservative surgery has proved useful, and one of these, which occurred in the regiment to which I was attached, was as successful a case as could be wished.

"Lieutenant S., 17th Regiment, A. D. C., was wounded at the assault on the Redan on the 8th Sept., 1855. He was in the act of retiring to bring up the supports, when he was struck by a rifle ball, which entered the back part of the left thigh, immediately under the fold of the hip, and was removed below and a little in front of the great trochanter, by Mr. Ward, surgeon 17th Regiment. It was of the round form, and entire. When he was brought to the hospital, it was easily seen that the femur was fractured—there was considerable shortening of the limb, and distinct crepitation. The limb was bandaged from the toes upwards, and the long splint applied in the usual manner. Two days afterwards, when the swelling had somewhat abated, the bandage and splint were re-applied to the limb, and he was placed on a hair mattress, with a removable pad, which would not only allow the lower wound to be dressed, but also admit the bed-pan below him, without moving him in the least. He had good spirits, was in first-rate health, and conducted himself in every way we could wish, so as to facilitate the union of the bone. He was getting on very well when we left him on the 4th October. The regiment going to Kinburn, he was left under the care of Mr. Bower, surgeon Rifle Brigade. The same plan of treatment was carried out, and when we returned, on the 11th November, we found that the lower wound had healed up shortly after we left, and that now the bone was completely united. About a month afterwards he was able to turn himself in bed—the union was complete, the limb was the proper length, and there only remained a small sinus, about half an inch deep, at the anterior wound, from which some small spiculæ of bone have been discharged. His limb was at that time on a double inclined plane, but for comfort and for the purpose of flexing the knee, which had got stiff during the progress of the cure. He was soon afterwards sent to England, and I have heard since that he is perfectly recovered.

"The adaptation of a movable pad to a fractured limb may seem a matter of small importance, but it will be found to bring the limb into the most favourable conditions which such cases admit of, for preventing interruption to the restorative powers of nature by the frequent motions which the dressing and attention to cleanliness would otherwise occasion."

46. *On the most eligible spot for the performance of Amputation of the Leg.*—A prolonged discussion upon this subject has recently taken place at the Société de Chirurgie. M. Larrey took occasion to observe, that the soldiers who have of late arrived from the Crimea, having had amputation performed at the middle third or lower part of the leg, were in so bad a condition as to lead to the conclusion, that amputation at the place of election must in the end prevail. The difficulty in employing artificial limbs is so great, and the accidents which result are so numerous, that the patients at last find themselves obliged to resort to the wooden leg. M. Chassaignac, believing our first duty to be the preservation of life, thinks we should never resort to the place of election when we can perform supra-malleolar amputation. M. Verneuil stated that he had paid much attention to the ulterior effects of amputation, and he thinks that supra-malleolar amputation has been too exclusively recommended. There can be no doubt but that the immediate mortality is far less than after the old mode; but we should also take into account the amount of ulterior benefit derivable by the patient. Startling as the assertion may seem, he thinks that in certain cases it is better to run the chance of a greater mortality, than to perform an operation that may prove useless and require repetition. Supra-malleolar amputation is much oftener followed by conicity and other defective

states of the stump, than is amputation high up; while osteitis, caries, or necrosis of the bones of the leg, is a more frequent result. This last usually has occurred when the operation has been performed for disease of the tibio-tarsal joint, the osteitis of the bone having spread from the disease of the joint. The first results of the operation are deceptive—for it has an antiphlogistic effect—and for some months the patient may seem cured. But later, either spontaneously or from slight causes, the osteitis is reproduced, and may necessitate secondary amputation. Therefore, whenever amputation is performed for disease of this joint, it should be practised at the upper third. But in traumatic affections, and in disease of the bones of the foot, in which those of the leg but little participate, the supra-malleolar operation is preferable.

M. Guersant has found, in operating upon children, that the mortality is the same in both localities; but from his patients having in after-life to provide for their living, and finding difficulty in getting artificial limbs, he prefers operating at the place of election. M. Huguier dwelt upon the relative safety of the supra-malleolar operation, having lost only one patient in 14 cases; but he admits that the predilection for this operation which his success imparted to him, has undergone considerable modification on observing its ultimate consequences. These never follow when the operation is performed for traumatic lesions, and he does not recommend it in the case of white swelling. M. Broca admits that many patients who have undergone supra-malleolar amputation, have suffered severe accidents from want of a suitable prothetic apparatus; and great is the inconvenience produced by the long stump when a wooden leg is resorted to. Still these effects are nothing when compared with the greater safety of the operation; and while it is admitted that five-sixths of these patients recover, more than half of those die who are operated upon at the place of election. Even in those cases when necrosis demands another operation, secondary amputation is less fatal than primary. As to the question of the ultimate effects of the two operations upon the stumps, after amputation at the place of election, the patient rests upon his knee, which gives him a firm support, but he is deprived of the power of flexion and extension of the joint. After the supra-malleolar amputation, the artificial limb is supported at the ischium, and a hinge-joint allows of such movements at the knee, that it is quite surprising how perfect a substitute the apparatus becomes. It is true that the poor only obtain ill-made apparatus, which frequently get out of repair, and often ultimately produce irritation and ulceration of the stump. Still it is the duty of the surgeon to perform that operation which saves most lives, and leave the supplying these defects to others.

M. Robert observed that if the relative amount of mortality were to decide the question, there could be no doubt about the preference. In children, however, amputation at the place of election is preferable, for the mortality is not greater, while there is difficulty in fitting a prothetic apparatus and necessity of changing it. Even in the adult, the question of preference is doubtful, when the occupations of the patient are laborious, for he then often forsakes the artificial limb for the greater solidity afforded by the wooden leg. Then, again, the nature of the lesion should exert great influence upon our decision. When it affects the foot, but not the joint, the supra-malleolar operation is preferable, but it should not be had recourse to in the case of white swelling of the joint. M. Giraldès thought that the instances of soldiers coming from the Crimea, given by Larrey, were hardly fair examples of the effects of supra-malleolar operations, inasmuch as such patients had suffered much in the ambulances, and in shifting from hospital to hospital. He believes that some of the evil results are due to the application of apparatus prior to complete cicatrization. M. Hutin stated that during the eleven years he had been at the Invalids, he had had more than two hundred soldiers under his care who had undergone amputation. In the great majority it had been performed at the place of election, or above this, and in not a single case had he observed any rupture or ulceration of the cicatrix. Among those patients, however, in whom it had been performed at the lower third, these were common. The fusiform disposition of these stumps, the almost constant presence of ulceration, and the inconvenience produced by the constriction of artificial limbs, induce the patients to reject

these in favour of the wooden leg. With this, the large projection of the stump behind is most inconvenient, and gives rise to the production of great irritation. During winter, the stump becomes cold, violaceous, tense, and painful, while ulceration of the delicate and unsupported cicatrix is almost constant.—*B. and F. Med.-Chirurg. Rev.*, Jan., 1857, from *Gazette des Hôpitaux*, Nos. 116, 117, 120, 126, 129, and 131.

47. *Chloride of Zinc in the Treatment of Cancer.*—Dr. EDWARD S. HAVILAND, who has been engaged for some time past in the treatment of cancer by the process of enucleation, under the use of chloride of zinc—an escharotic long known to the profession—gives (*Lancet*, Feb. 14, 1857) the following brief result of his experience with his mode of preparing and employing the article:—

The caustic chloride of zinc is prepared “by making it into a thick paste with any absorbent powder, such as gypsum, flour, starch, or the powder of althæa, or gum acacia; and I find the proportions necessary are either equal parts of the chloride and powder, two or even three of the former to one of the latter; or, what I prefer is, a mucilage of the purest gum arabic, made as thick as possible, or sufficiently viscid and glutinous to prevent its running, as, on account of the highly deliquescent nature of the chloride of zinc, it is apt to run over the sound and healthy skin, which it destroys almost with equal facility as the diseased structure, though a contrary opinion prevails. The preparation may be coloured with any vegetable colouring matter, which permeates into the subjacent tissue, indicating the depth which each dressing has penetrated, and materially facilitates the operations of the surgeon.

“Next comes the mode of employing the remedy, which will slightly vary according to whether the skin is unbroken or not. When the skin is entire, having marked out the extent of the disease, apply either the acid nitrate of mercury or strong nitric acid, so as to completely destroy it over the whole surface, in order that the caustic may act more speedily, and after the heat and pain attending the destruction of the part has subsided, next apply the dressing, spread on calico or lint, the shape and size required; and over the whole apply a portion of wadding or cotton wool, to protect it from cold and absorb any moisture occasioned by the running of the dressing. The parts around, and especially below, should be protected from the action of the caustic, by a thickly-spread dressing of spermaceti ointment, holding as much chloroform mixed in it as it will take up, which will at the same time tend to allay the burning and pain during the action of the escharotic. Sedatives may be given with the same object, such as pills composed of opium, the compound soap pill, or Battley’s solution; the state of the system being attended to, and the patient encouraged to take a generous diet, with wine and malt liquor after the first few days. At the same time, the constitution should be improved by administering cod-liver oil, and the different preparations of steel and quinine, especially the iodide of iron; and the iodide of arsenic may be given in combination with hemlock, with a view, if possible, to alter the cancerous diathesis. The following day a whitish eschar will be seen, through which incisions to the depth of the part destroyed should be made vertically through the tumour, and dressings spread on narrow strips of lint or calico should be carried to the bottom, and the same should be continued daily until the whole is destroyed, which will be in twelve or fourteen days, after which the dressings may be discontinued. The tumour will thus be enucleated in about thirty days from the commencement, leaving a granulating healthy surface, which will heal most rapidly with the ordinary resin dressing or the dry cotton wadding.

“In case of an ulcerated or open cancer, the dressing may be applied at once, spread on calico or lint, the shape and size of the sore, which may afterwards be treated with incisions in the same way as that where the skin was intact.

“Having made these general remarks I will now conclude by giving a short history of one of my cases in illustration of this mode of treatment:—

“Mrs. D——, aged forty-eight, the mother of ten children, a spare, thin, and emaciated person, has a hard, circumscribed tumour in the right breast, with considerable surrounding infiltration, having all the characteristics of con-

firmed scirrhus, free from attachment, and nipple not retracted; feels sharp, darting, and lancinating pains shooting through the tumour, extending to the glands in the axilla, which are much enlarged. A small hard swelling was first perceived about eight years since, the origin of which she attributes to a blow. Until two years ago the enlargement was very trifling, when the catamenia ceased, but since then it has increased most rapidly, and the pain, which was at first very inconsiderable, has been much more severe in its character. The health is very materially impaired, though no very strongly-marked cancerous cachexia is observable in her countenance. There is no hereditary predisposition; but she has lost a sister by consumption.

"Dec. 3, 1856. Commenced to destroy the skin over the full extent of the surface of the tumour by the application of strong nitric acid, the heat and pain of which having subsided, I next applied the escharotic, prepared and spread on linen (as described) over the part to the extent of which I had destroyed the skin, over which I placed a portion of cotton wool, and left it until the following day, prescribing one grain of opium every four hours to allay the pain, and to commence with one pill three times a day, composed of one grain of iodide of arsenic; twelve grains of sulphate of quinine; twenty-four grains of extract of hemlock: mix, and divide into twelve pills.

"4th. The skin over the tumour where the acid and dressing had been applied being perfectly destroyed, I made several vertical incisions from above, or the top part of the tumour, to the bottom, merely through the skin, as deep as the deadened part, when narrow strips of linen, spread with the dressings,<sup>1</sup> were pressed down by means of a probe, to the bottom of the same. On account of her excessive debility and exhaustion, cod-liver oil was ordered, together with some steel medicine, with full meat diet, wine, and porter.

"5th. The incisions were deepened, and the dressings applied as before. This was repeated daily till the

"17th. When I found I had reached to the bottom of the diseased structure, from which time they were discontinued. The line of demarcation between the dead and living part was now very perceptible, and it afterwards became gradually more defined, until the entire separation around the tumour took place.

"Jan. 4, 1857. The thirty-second day after the commencement of the treatment, the tumour was enucleated entire, weighing at least a pound and a quarter, during a part of which time she suffered severely from influenza and bronchitis, which greatly retarded its progress. On the detachment of the tumour, a healthy granulating surface presented itself, which has since continued to heal most rapidly under the use of the ordinary resin dressing, and at the same time her health has most remarkably improved."

[A professional friend in this city, some years since, tried this caustic in cancer, in a number of cases, but his results were not such as to give encouragement to its further use.—Ed.]

48. *Landolfi's Method of treating Cancer.*—The commission appointed by the Imperial Academy of Sciences, consisting of MM. Broca, Cazolis, Furnari, Manec, Mounier, and Moissenet, have just reported most unfavourably upon M. Landolfi's method of treating cancer. According to the report, there is nothing new in this method, and the caustic employed is only the caustic of M. Canquoin disguised by the addition of a colouring and strongly smelling substance, and rendered more unmanageable and less certain in its action by the addition. The report also condemns M. Landolfi's plan of attacking only small portions of the tumour at a time. Nor is there anything of a practical character to recommend this plan; for of 9 cases of cancer of the breast, and 3 cases of canceroid disease, which were treated by M. Landolfi at the Salpêtrière, under the eyes of the commissioners, the results were as follows: among the 9 cases of cancer of the breast there were 2 deaths, 4 decided aggravations of the symptoms, and 3 cicatrizations with immediate *repullulation*—conse-

<sup>1</sup> In this instance the preparation was made in the proportion of two parts of the chloride of zinc to one part of mucilage.

quently no cure; and among the 3 cases of canceroid disease there was 1 in which cicatrization was followed by immediate *repullulation*, 1 in which the symptoms were so aggravated as to require amputation of a limb, and only 1 cure. In a word, the report stigmatizes the plan under consideration as more painful and more uncertain than other modes of cauterization.—*Ranking's Abstract*, vol. xxiv., from *Gaz. Hebdom. de Méd. et Chir.*, May 9, 1856.

49. *Treatment of Bubo*.—M. BROCA observes that a bubo undergoes two stages of development, during the first of which the inflammatory engorgement is confined to the gland itself, this containing a small central cavity filled with semi-fluid pus. In the second stage suppurative inflammation is propagated to the surrounding cellular tissue; and it is by such extension that the ravages of bubo are produced. The object of the proposed means of treatment is to prevent the production of this secondary abscess, by attacking the bubo during its first stage, and evacuating the pus before this has extended beyond the limits of the gland itself.

M. Broca prefixes some observations upon the diagnosis of the form of bubo that should be so treated, these being based upon Ricord's doctrines. Such bubos are indurated, rounded glands, the skin over which is not discoloured, and they have very much the appearance of the indolent bubo met with in the first stage of constitutional syphilis, but which, never suppurating, requires no local treatment. This indolent *constitutional* bubo is in fact one of the first symptoms of secondary syphilis which follows indurated chancre, and is amenable to mercurial treatment. The *local* suppurating bubo never appears but in glands which are in direct communication with the part that is the seat of chancre, which chancre is never indurated, and never gives rise to constitutional syphilis. It is amenable only to local treatment, and the existence of a glandular abscess is sufficient to conclude that the syphilis is local, and that mercury is inexpedient. When the *local* bubo has reached its stage of complete development, there is therefore no difficulty in its diagnosis; but at first, prior to the propagation of the suppurative inflammation to the cellular tissue, it may be confounded with constitutional bubo. But, as has been stated, this last almost constantly arises from indurated chancre, which is never the case with the local bubo. The constitutional exists on both sides, the local is very often unilateral. The latter is never accompanied by symptoms of constitutional syphilis, while in the former there are always more or less evident signs of a general infection, which gives rise to other analogous glandular engorgements, and especially at the postero-superior cervical region. The tumour in the constitutional bubo is quite indolent, while the other is always more or less painful, especially upon pressure. In the former there are generally a considerable number of glands engorged, which are scattered over the whole extent of the bend of the groin; while in the latter, but two or three glands, placed close to each other, and often only one, are affected. In constitutional bubo the tumour is very hard and entirely solid; but in local bubo it is somewhat less hard, and imparts a sense of fluctuation similar to that furnished by a small cyst with very thick walls. This fluctuation alike differs from that of an ordinary abscess, and from the resistance of solid tumours. It is due to the semi-fluid purulent matter contained in the centre of the gland.

The accurate diagnosis is of importance, as the treatment recommended is applicable only to the local bubo. When the gland has acquired the size of a small hazel-nut, it should be firmly fixed by two fingers of the left hand, and a bistoury plunged into its centre. Without letting go of it, the bistoury should be removed, and a grooved director passed in. On employing strong lateral pressure, a small quantity of semi-fluid, ill-elaborated pus is forced along the groove; and the pressure must be continued until the blood comes, so as to secure the entire discharge of this pus. It is rather a painful procedure, and must be repeated on each affected gland. The tumour becomes a little reduced in size, but next day it has somewhat enlarged again, and the small quantity of pus that has again formed must be discharged by passing in the director and using pressure. This must be done every day until either suppuration ceases, or a small fistulous opening has become established for the discharge. In some

of his cases, M. Broca has injected tincture of iodine by means of a small syringe, and he thinks this may exert some effect in neutralizing the virulent properties of the pus when this is inoculable. At present but 9 cases have been treated by this new mode, no ill effect having resulted in any one of them; while extension of suppuration to the cellular tissue, with the consequent ulceration, detachment of skin, &c., has been avoided. In 5 out of the 9 cases, less than a week sufficed for a cure; the other cases requiring twelve, thirteen, thirty-seven, and fifty days; a small fistulous opening alone remaining during that period, in place of the large purulent collection usually observed. This mode of treatment, therefore, even when it does not abridge the duration of the bubo, materially restrains its extension.

Since the above paper appeared, M. Gély, surgeon of the Hôtel-Dieu, Nantes, has published<sup>1</sup> an account of some observations he made upon the subject in 1852-3. He states that he has derived great advantage from making punctures with a lancet at an early period, sometimes as soon as the third or fourth day. He introduces no conductor, and employs no pressure, but makes a puncture large and deep enough to allow of a free escape of the pus; and applies a tepid cataplasm if there is much inflammation.—*B. and F. Med.-Chir. Rev.*, Jan., 1857, from *Bull. de Thérap.*, tom li.

50. *Orchitis*.—M. VELPEAU in the course of his annual clinical review at La Charité, made some very interesting observations upon the cases of orchitis. These were 50 in number, 48 being acute and 2 chronic. It was remarkable that 24 occurred on the right, and 24 on the left side, two cases being double—one of these being an example of tubercular disease. M. Velpeau observed that examples of tubercular testis should teach us the caution necessary in laying down absolute laws in pathology. Louis has laid down such a law in stating that when tubercles are found in any other organ, they will also be found in the lung; but the testis offers numerous exceptions to this, which it is necessary to bear in mind, lest our prognosis be needlessly unfavourable.

Of the 48 acute cases, 3 were parotidean, 2 were due to masturbation, 6 occurred without appreciable cause, and 37 arose from gonorrhœa. The variety of orchitis due to mumps, of which there were three examples, should be distinguished from the others, as it has neither the same duration, mode of progress, or appearance. The epididymis is moderately swollen, the testis is increased in size, and the scrotum is slightly erysipelatous, while there is generally no fluid in the tunica vaginalis. This form is rapidly developed, reaches its height almost at once, and then decreases spontaneously, resolution soon being completed. It is evidently quite a special kind of inflammation.

In several cases masturbation was suspected, and in two was ascertained to be the cause; and it is easy to see how orchitis may arise from irritation induced at the lower part of the urethra by this practice. It is, however, only of late years, after close interrogation of the patients, that M. Velpeau has admitted this as a cause of orchitis. It is a variety also requiring to be studied apart. There is less swelling of the epididymis, and little or no fluid. If the cause ceases, resolution takes place in three or four days.

Six of these cases are said to have occurred without appreciable causes—that is, independently of all inflammation or irritation of the urethra. The patients often attribute the occurrence to a strain, but the data furnished by anatomy have led to the denial of the influence of this cause, inasmuch as compression of the cord cannot be produced by the external ring. This doctrine has prevailed since the time of Winslow, but then the external ring only was taken into account. Since then it has been shown that a bundle of fibres extends from the external edge of the aponeurosis of the rectus to the crest of the ileum. These form an arch with its concavity upwards, upon which the cord lies, making a more or less acute angle at the internal orifice of the inguinal canal. It is the compression exerted by this fibrous arch during straining that may become an occasional cause of orchitis, when it has been carried far enough to notably impede the circulation through the cord.

<sup>1</sup> *Moniteur des Hôpitaux*, Nos. 133, 136, 138.

Of the thirty-seven cases of gonorrhœal orchitis, in seven or eight there was no notable quantity of fluid in the tunica vaginalis; and in employing punctures in orchitis, there never flows out a quantity of fluid equivalent to the volume of the tumour. We may always observe swelling of the epididymis or of the testis, or both. The fact of simultaneous swelling of the epididymis and of the testis shows the impropriety of the term epididymitis that has been applied to orchitis. It is, indeed, often difficult to determine the presence of fluid when there is swelling of the testis, or even when the testis itself is healthy. The testis gives to the finger, in fact, a sense of fluctuation. But if we grasp the scrotum, so as to cause the tumour to project forwards, if there is even but a thin layer of fluid, we find it presenting a non-resisting plane to the finger, which, giving way, allows us to come upon a more resistant plane, in which we still perceive fluctuation. This last is the testicle; but to distinguish slight accumulations, it requires that the finger should be well exercised. The vas deferens is affected in the majority of cases, being swollen and painful; and this is of importance, for such a condition of the canal implies a longer duration of the orchitis. The testicle may indeed be compared to an inflamed gland, and just as sometimes we do not perceive the inflamed absorbent vessel, so here there may be an absence of swelling of the vas deferens. Swelling of the epididymis also implies a longer duration of the affection; and it may be stated that this will be less in proportion as the testis is more affected than the epididymis and the vas deferens.

The mean duration was in these cases sixteen days; forty-six of the patients were cured, two were not so when they left, and one of these afterwards died. In this case the orchitis was not very severe, and succeeded to a mild gonorrhœa, contracted by a young man having hypospadias. He died of peritonitis; and on examination, all the seminal passages were found to be the seat of blennorrhagia. The vesiculæ seminales were in a state of suppuration, and the peritonitis had originated at the recto-vesical cul-de-sac. This is a rare case; but, as M. Velpeau has long since remarked, inflammation of the vesiculæ seminales is by no means a rare affection after gonorrhœa. The treatment of these patients has consisted in the employment of rest, cold, suspensories, mercurial inunction, and either single or multiple punctures with a lancet, abstaining from leeches. Punctures, by giving issue to the fluid, give great relief to the patient, certainly abridges the duration of the disease, and is exempt from inconvenience. In appreciating various modes of treatment, we must never lose sight of the varieties of the affection, for these will explain much of the success said to follow some of the modes proposed.—*B. and F. Med.-Chirurg. Rev.*, Jan., 1857.

51. *Valves of Abscesses and Fistulæ.*—Prof. ROSER observes that in an abscess which has spontaneously opened, we often may observe a valvular mechanism, permitting the pus to flow out, but not allowing the entrance of air. This may be the case, not only with abscesses opening upon the skin, but those discharging upon internal membranes. Thus, we sometimes find an empyema emptying itself through the bronchi, the most careful examination failing to detect the admission of air into the cavity of the abscess. The same thing occurs in several abscesses within the abdomen. Collections of matter may be discharged through the intestinal canal, the intestinal gases or fecal matters not reaching the abscess. So also in respect to the rectum, the bladder, the urethra, and the trachea. Indubitably, in many of these cases, a valvular mechanism must be supposed to be present; and to this, and its prevention of the putrefactive decomposition of the contents of the abscess, many a patient has owed his life.

But all valves of abscesses are not thus useful, some being injurious in their operation, as when they obstruct the issue of the pus, and prevent the complete emptying of the abscess. Such abscesses keep filling again and again. Under the influence of forcible distension or acute suppuration, the mouth of the abscess becomes from time to time widened, and the valves are pressed aside or torn through; but they are soon reproduced, and the obstruction to the flow again occurs, so that such collections may last for years. The valvular condition of such abscesses can be demonstrated; for the pus cannot be pressed out,

although the opening may be large. But if a catheter or other tube be introduced, or the opening be enlarged by a knife, a considerable quantity of pus is often suddenly discharged. These valves may be often temporarily displaced by a sound; and by its daily introduction, many abscesses of this description may be healed; but in more obstinate cases, the introduction of tubelets or repeated incisions are required.

As a general rule, it is not in subcutaneous abscesses that we find this valvular mechanism, but in the more important and deep-lying collections—as in empyema; deep cervical, post-mammary, or axillary abscesses; and in those of the abdomen and pelvis; and in periosteal and perineal collections. The valve may not always be found near the orifice, and the deeper it is placed the less are we disposed to pursue it with the knife. In such cases we must endeavour to widen and maintain the opening by means of metallic or caoutchouc tubelets, or sponge tents. In many places, as in the deep parts of the thigh, the neck, and the pelvis, it is preferable to produce forcible dilatation with a forceps to penetrating too far with the knife. Professor Roser has often had recourse to dilatation of this kind in deep-seated acute or chronic abscess, in the removal of osseous sequestra, and in operations for hernia.

Three kinds of these valves may be distinguished: 1. The *obliquely-placed valves* are the most common, and they may be called from their describer, Abernethy's valves. As physiological examples of such, the entrance of the ureter into the bladder, and of the parotid ducts into the mouth, may be adduced. In the lip-form fistulæ a similar valvular mechanism is brought into play, an example of which occurred in Dr. Beaumont's case of fistulous opening into the stomach. In a case of lip-form vesico-vaginal fistula which occurred to the author, a catheter could be easily passed along; but if air or water were injected into the rectum, no portion, owing to the oblique direction of the valve, entered the vagina. 2. Among the obliquely placed valves, the *wart-like* may be included. The mouth of the abscess is surrounded by spongy warts, from the midst of which the pus issues, while the admission of air is prevented by the warts pressing inwards so as to close the orifice. Such openings are not infrequently observed at the surface; and Professor Roser believes that, in many intestinal perforations, a similar mechanism prevails. 3. The *pad-like* valve, which is analogous to the valve of an air-pump, and an example of which is found in the valve of the prostate. It is this form which especially opposes the exit of pus, and calls for surgical interference.—*B. and F. Med.-Chirurg. Rev.*, Jan., 1857, from *Vierordt's Archiv.*, 1856.

52. *Anatomy and Pathology of the adult Prostate.*—Mr. HENRY THOMPSON read some highly interesting observations on this subject before the Royal Medical and Chirurgical Society (Feb. 10th, 1857). The observations are based on upwards of sixty dissections, fifty of which were preserved and exhibited, the latter having been examined on a uniform plan.

*Mode of examination.*—The organ has been clearly dissected from adjacent parts. At the neck of the bladder, the muscular and other fibrous structures which surround the vesical orifice of the urethra were pared away pretty closely; some portions may have been left, as it does not appear possible to mark any absolute limit between prostate and bladder; anteriorly, although the same condition exists, it is less difficult to determine, approximatively, a boundary line. It was then measured, in three directions, as follows: from base to apex; in the extreme transverse direction; and in the extreme recto-pubic direction. Next, it was weighed. After this, the urethra was laid open, the existence of "concretions" sought in the canal, and afterwards in various parts of the prostatic substance. In most specimens, free sections were made with Valentin's knife, and a series of microscopical observations pursued in normal and abnormal conditions of the organ, illustrated by about 100 specimens, mounted on slides, with preservative fluid. The greater part of these prostates were taken from the bodies of elderly persons, as they consecutively appeared in the dead-house of a large institution, containing a due proportion of healthy and diseased lives, and no kind of selection was made. The par-

ticulars of age, weight, and measurement are arranged in tables exhibited. The observations made are presented under the following heads:—

I. *On the frequency with which enlargement appears in advanced age.*—The opinion has long been current that the enlargement of the prostate is one of the changes natural to old age. The specimens in question show the incorrectness of this view. Of the 50 specimens, 43 were taken from individuals of fifty years old and upwards. Of these 43, two were very small, probably atrophied, leaving 41. Of these 41, 14 exhibited enlargement, or a tendency thereto, manifested by the presence of tumour, more or less developed. Of these 14, 9 exhibited it in a very slight degree; in the remaining 5, enlargement was considerable, and gave rise to symptoms during life. Only one died of the affection.

*Results, per cent.*—An appreciable enlargement existed at the rate of 32 per cent.; notable enlargement, causing symptoms during life, at that of 12 per cent.

Of the 41 cases above fifty years of age, 29 were therefore unaffected in the slightest degree, and amongst them were the oldest individuals of the series—one at ninety, one at eighty-five, and two at seventy-nine years. It was then held to be established, that enlargement of the prostate, so far from being a change natural to old age, was an exceptional condition.

II. *The size and weight of the adult prostate.*—From the 50 cases of all adult ages, 14 being deducted as enlarged, and 3 as unnaturally small, 33 specimens remained healthy; the average weight of these was 4 drachms 38 grains; there was very little deviation, most of them ranging between 4 and 5 drachms.

*Measurements.*—Those given by authors generally were corroborated. The prevailing measurements were: From base to apex,  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inch; greatest transverse diameter, about  $1\frac{3}{8}$  inch; greatest thickness,  $\frac{5}{8}$  to  $\frac{7}{8}$  inch; measurement from the centre of the urethra, outwards and downwards to the periphery of the organ, the line of section adopted in lithotomy, varied from  $\frac{3}{4}$  to  $\frac{5}{8}$  inch.

III. *On the nature of a part commonly called "the third lobe."*—The history of this term, and its employment to indicate a distinct portion of the organ, is discussed at some length. An examination of the preparations exhibited does not warrant its use. There is no portion marked out with sufficient distinctness to entitle it to such an appellation. Its existence appeared to have been the subject of discussion during some years in the course of the last century, long before the time of Sir Everard Home, the result of which was then a decided denial of its existence; Morgagni especially, after repeated examinations, strongly opposing its claim to be considered a distinct part of the healthy organ. It was proposed now to term the stratum of prostate substance, which united the two lateral lobes behind and below the urethra, the "posterior median portion," as more correctly indicating the part referred to, and at all events as not involving assent to the disputable theory which assigned to it an independent character.

IV. *On the existence of distinct tumours in the prostate.*—The existence of solid tumours of different kinds is by no means rare in the prostate. They were pointed out by Sir E. Home, and by him supposed to be of the nature of apoplectic clots. Subsequently they have been regarded as fibrous tumours, and more lately it has been shown that some possess a structure approaching very nearly to that of the secreting tissue contained in the prostatic substance around. It is shown that enlargement of the prostate is very frequently associated with the development, more or less marked, of such growths in some one of three forms; in short, that the production of defined tumour is more frequently than otherwise the essential element of the pathological condition known as hypertrophy of the prostate. Of the fourteen enlarged prostates in the series, six exhibited numerous fibrous tumours in the substance of the lateral lobes; the others show polypoid enlargements, single, binary, or multiple, springing from the posterior median portion. The varieties may be briefly noticed as follows:—

1. A simple fibrous tumour, small, nearly isolated, made up of closely-packed

organic muscular fibres, with some areolar tissue, intimately resembling those found imbedded in the walls of the uterus.

2. A tumour composed of the same elements as the preceding, but containing, in addition, some of the glandular substance of the prostate, more or less imperfectly developed. This also may be imbedded, with or without a cyst, seeming sometimes to partake more of the character of a local enlargement, limited to a small portion or lobule of the prostate tissue, and only partially isolated. Although separating this class from the previous one for facility of reference, it is more than probable that the two nearly merge into each other at their adjacent limits, the latter approximating to the former by insensible gradations; so that some tumours which appear to be purely fibrous at first may be found to exhibit slight traces, in parts of its structure, of the glandular element. In *all*, however, the basis is *muscular fibre*.

3. A tumour composed entirely of the ordinary structures of the prostate fully developed, and enjoying activity of function in common with the rest of the organ. It assumes a pyriform shape even in its earliest stage, and springs from the posterior median portion. It may vary in size from that of a pea to that of a middle-sized pear. The analogies between these and the tumours of the uterus are considerable. Pointed out by Velpeau and others, modern researches seem to indicate them more plainly.

1. There is a ground of analogy derived from the two organs, prostate and uterus, being undoubtedly morphological equivalents in the two sexes, the analogue of the uterus and vagina combined being found in the prostatic vesicle or utricle of man. Numerous authorities are referred to in support of this view.

2. A stronger ground may be found in the fact, that the prostate and uterus are organs whose bulk is constituted by the same tissue—viz., the organic muscular fibre. No other organ in the body besides these two is similarly constructed by thick masses of this tissue; elsewhere, it is distributed in very thin layers.

3. Both organs exhibit growths identical both in external and histological characters. Isolated tumours imbedded in the substance of the organ, and polypoid outgrowths intimately connected with its structure, are seen in both. The occurrence, in some prostatic tumours, of a very small proportion of partially-developed gland tissue, intermingled with the muscular basis, should be regarded rather as an accident of situation than as indicating any material difference between those and the purely muscular tumours.

4. The two organs are subject to considerable hypertrophic enlargement, mainly consisting of their constituent fibrous and muscular elements, and in both this may be associated with some tumour formation, or may exist independently of it; may, in the latter case, be local or general, affecting the whole or certain parts of the organ, and, when local, affecting particular spots more commonly than others.

5. The two organs are liable to these changes after the prime of life has passed. Bayle, quoted by Rokitansky, and confirmed by Dr. Robert Lee, says that 20 per cent. of women, after thirty-five years, have fibrous tumours of some size in the uterus. These preparations show prostatic tumours in 30 per cent. of males after fifty.—*Med. Times and Gaz.*, Feb. 21, 1857.

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## OPHTHALMOLOGY.

53. *The Ophthalmoscope in Diagnosis.*—Probably practical men have not as yet found that assistance in the diagnosis of the disease of the posterior part of the eyeball that it was hoped the ophthalmoscope would afford. However, the instrument is of much value, and we could readily point out the probability of its increased usefulness. The following case will exemplify its application: A young man applied to Mr. Walton, because he could not see with the left

eye. When the eye was directed forwards there was a glimmer of light, as he described it, "to the left;" but this was lost when the eye was turned outwards. There was not any objective symptom, except inactivity of the pupil. According to the history, a blow was received on the eyeball from a stone many months ago, and in a few minutes sight was lost. So apparently slight was the injury, that the surface of the eye was merely a little bloodshot. There was no after-symptom, not even pain. Mr. Walton determined to use the ophthalmoscope; and having seen some remarkable changes in the eye, brought the man to St. Mary's, on Wednesday last, to show him to his colleagues, or any gentleman who had not seen the ophthalmoscope applied. When the reflection of the mirror was thrown directly on the dilated pupil, the eye was not always at once illuminated, as happens when the interior of the organ has not undergone any structural change, the light falling as it were on a semi-opaque substance, but occasionally it enticed and produced illumination. A movement or two of the eyeball was sufficient to overcome this obstacle, which was apparently by the displacement of some substance. When the light was thus admitted, there was visible on the outer side of the eye a membranous looking body, with red vessels moving in undulations, and which Mr. Walton considered to be detached retina. With a little management of the ophthalmoscope, and altering the position of the eye, the ramification of the artery on the inner portion of the retina was recognizable. This was considered to be a satisfactory demonstration that the eye was destroyed, and that all treatment must necessarily be useless. If the ophthalmoscope only saved patients from useless courses of mercury, blistering, etc., and practitioners from the discredit of exciting false hopes, its utility would be very great. Mr. Holmes Coote has had a room fitted up at St. Bartholomew's, where the eye can be conveniently examined by the ophthalmoscope. He gave a very useful clinical lecture on the 12th instant, explaining the use of the instrument, concluding by narrating the following case: "A woman is at the present time in the hospital under my care, in whose right eye I have made an artificial pupil with advantage, and propose repeating the operation on the opposite organ. Two years ago, she had an attack of syphilitic iritis, which produced the usual effects of adhesion of the margin of the iris to the crystalline lens, and contraction and nearly complete obliteration of the pupil. By dilating the pupil in one direction, where the adhesion was less firm, by means of atropine and using the ophthalmoscope, I ascertained that the choroid was tolerably healthy, and I therefore recommended the woman confidently to submit to an operation, which would allow the free passage of light into the globe. This has been done, and she can now make out large print with a glass. My friend Mr. Wordsworth, of the Royal Ophthalmic Hospital, mentioned to me a case of blindness, ensuing after a blow, due entirely to an extravasation of a clot of blood in the vitreous humour, in the direct axis of vision. It was quite invisible in the unassisted examination, the eye of the patient looking natural. Now, many of you will enter the public service, where you will have to decide on cases such as these. A man, blind of one eye, especially the right, is hardly fit to be a soldier; and yet you might be inclined to accuse the man of malingering, in such a case as the preceding, without the assistance derived from the ophthalmoscope. A woman was recently dismissed from a large hospital as incurably amaurotic. It was discovered in another place, by means of the ophthalmoscope, that a melanotic tumour was growing from the back of the eye, and the organ was extirpated accordingly." Mr. Coote uses the instrument of Coccius.—*Med. Times and Gaz.*, Jan. 24, 1857.

54. *Inutility of Depletion in the Cure of Syphilitic Iritis.*—Mr. JOHN HAMILTON, Surgeon to the Richmond Hospital, in a recent clinical lecture (*Dublin Hospital Gazette*, Dec. 8, 1856), states that he is *sure* that depletion is unnecessary for the cure of syphilitic iritis. "I have," he says, "for many years past, treated a large number of cases without taking away a drop of blood, and cured them as rapidly and effectually as could be wished. The treatment has consisted in the administration of mercury to decided salivation, and the application of the extract of belladonna round the orbit." He reports two

instances of the success of this mode of treatment, in cases offering the acute form of the disease.

"I was originally led," he states, "to reject depletion, when patients, labouring under syphilitic iritis, presented themselves in the same wretched, depressed condition as this man and woman, and with such a bloodless aspect, that they were obviously no subjects for taking from them what they so evidently wanted—a proper supply of healthy vivifying fluid. With the old prejudices in favour of depletion in inflammatory diseases, it required some courage to resist applying leeches or cupping-glasses, when the eye was so intensely inflamed; and I watched the daily progress of the diseased action with no little anxiety. Observing this to be so favourable, that directly the mercury affected the mouth and the system, the inflammation subsided, the iris resumed its bright, healthy aspect, and unclogged of the lymph which, deposited in its structure had stopped its motions, the pupil expanded to the action of belladonna, I applied the same treatment to other cases, and finally rejected depletion altogether in syphilitic iritis. The line of treatment is sufficiently detailed in these cases to render any further remarks, as to the form or mode of administering mercury, unnecessary. Two grains of calomel, and one-fourth, or one-eighth, of a grain of opium, three times a day, till full salivation, in subacute cases; and in the acute form of the disease, or in that which suddenly becomes acute, the same quantity every third hour. Where there are other symptoms, eruptions, etc., the mercurial action should be kept up for eight or ten weeks, till the poison is fully worked out of the system.

"It will be frequently observed that, during the time the patient is taking mercury, before salivation is induced, the disease advances, the iris becomes more dull and thicker, and the pupil more hazy; in short, that the unchecked inflammation is exhibiting its ravages on the structures of the eye. It might be considered a time for depletion, but it is not; though the application of a cupping-glass to the temple, or a full bleeding from the arm, will pale the red and inflamed eye for a time, by unloading the vessels, and the patient see, perhaps, more clearly, the amendment is short-lived, the specific diseased action is there still, and soon resumes its work of destruction, which is only effectually checked by mercury. Directly the mouth is affected, the improvement begins, and persists.

"Relapses in syphilitic iritis are, it is well known, common, even after the iritis is apparently quite well. Sometimes only a little pale pink zone round the cornea marks a tendency to return of the disease, with some contraction of the pupil; at others, the relapse consists in a full return of the disease as bad as ever; contracted, irregular pupil, dull, discoloured iris, loss of sight, and intense vascularity of both conjunctiva and sclerotica. The patient is, probably, under the influence of mercury at the time; he must be kept so, and the quantity rather increased, to produce a more decided action on the gums.

"Now, with respect to the other great agent in the treatment of syphilitic iritis—belladonna. It may be used either in the ordinary way of a portion of the extract moistened, and rubbed round the edge of the orbit, or a drop of the solution of atropine, according to the strength of the Pharmacopœia; that is, two grains to the drachm, may be dropped into the eye. In the latter way, the pupil begins to dilate a minute or so, after the drop is in the eye, and remains dilated from twenty to thirty hours, or even longer, afterwards. It is a simple and clean way of using the remedy; the only objection is, that it smarts a good deal. If the extract is used, it should be smeared over the orbit a half an hour before the pain comes on, and it will be found materially to lessen, or entirely prevent the occurrence of the pain. Authors appear not to have attended to this very valuable property of belladonna, their attention having been absorbed by its action on the pupil. When we consider the *rationale* of the effects of belladonna in assuaging the supra-orbital pain, or in dilating the pupils, we may, I think, attribute them fairly to its influence on the supra-maxillary branch of the fifth nerve. Anatomists are divided as to the real structure of the iris; some believing the circular fibres at the inner ring round the pupil to be muscular, but the radiated fibres not so, but of a vascular

structure; others, among whom there is no higher authority than Dr. Jacob, consider both circular and radiated fibres to be muscular.

The action of belladonna favours the former opinion. By paralyzing the ciliary nerves through the supra and infra-orbital branches of the fifth, the proper sensibility of the iris is destroyed, and the circular or sphincter muscle ceases to act or resist the dilating force of the radiated elastic fibres, which act mechanically, and dilate the pupil. If both fibres were muscular, as they both receive their sensitive and motor power from the ciliary nerves of the lenticular ganglion, formed by branches from the third and fifth, and sympathetic, they should both be paralyzed by the belladonna, and the pupil should be neither dilated nor contracted. We see the contrary to this in the extremities, where the flexor and extensor muscles, receiving their nerves from different sources, the paralysis of the extensors may take place alone, and the unaffected flexors act separately, and keep the limb permanently flexed. Did the circular and radiated fibres of the iris receive their supply of motor nerves from different sources, the paralysis of one might lead to the unresisted action of the other, as in the instance cited above, or the not less striking one of the external rectus muscle of the eye, which alone receives its supply from the sixth nerve, and is paralyzed alone, while its antagonist muscle, the internal rectus, getting its motor supply from another source, acts vigorously, and draws the eye inwards to a squint. For these reasons, therefore, I think that the action of belladonna in dilating the pupil, is in favour of the circular fibres of the iris being muscular, the radiated fibres not so, but of elastic tissue. However this may be, this property of belladonna of dilating the pupil, is most valuable. In the beginning of iritis, as I have already said, when the structure of the iris is clogged up with lymph, this action is not apparent; its utility, then, would mainly appear to be to paralyze the circular fibres, and thus prevent contraction of the pupil. But it is only as the lymph is absorbed by the mercurial action, and the iris regains its natural structure and properties, that the pupil dilates by the belladonna, and it is then only that the nature and extent of the adhesions are made manifest, either at one side, or at several different places; and as, at these parts, the edge of the iris is tied down, while it elsewhere dilates, various forms of irregularity of the pupil are observed. Where there have been many points of adhesion at pretty regular distances, a festooned appearance has been given to the edge of the iris. By the aid of a glass, in one case, about twenty small strings of lymph were seen joining the iris to the capsule of the lens. In others, the inner edge of the iris presented a fringed appearance. The adhesions, in some cases, remain permanently, but in the majority they entirely disappear. By the well regulated administration of mercury, therefore, proportioned to the progress of the case, and the local use of belladonna, you will, in the majority of cases, cure your patient of syphilitic iritis, without abstracting a drop of blood. One thing I should wish still to impress upon you, viz., that you should be very slow in giving up apparently the most hopeless case of syphilitic iritis, such cases as we meet with chiefly in hospital practice, where a constitution, originally bad, has been further deteriorated and irritated by drink and bad diet, with a long-continued previous neglect of all remedial measures. When the disease is in its most advanced stage, tubercles on the iris, pus in the anterior chamber, the pupil contracted, shaggy, and opaque from lymph, even in such cases, by a prolonged use of mercury and belladonna, though you may fail in perfectly restoring the organ, you will often succeed in effecting a most useful degree of vision.

55. *Entropium, or Inversion of the Eyelid; its Pathology and Treatment.*—The *British Medical Journal* (Jan. 3, 1857) contains an interesting report, by Dr. MAURICE DAVIS, of a case of entropium recently operated upon by Mr. Haynes Walton, at the Central London Ophthalmic Hospital, with some just preliminary remarks.

“It has been remarked that ophthalmic surgery owes no advancement to the mere oculist. Now, although our knowledge of ancient medical literature is too defective to be applied, we can give proof of the correctness of the statement in modern times in Great Britain. All the treatises, and all the mono-

graphs of any worth on ophthalmology, have been produced by men who have extended medical educations, and who besides, we believe without an exception, have practised, for some period of their lives, as surgeons or as physicians. Then, nearly all have been attached to general hospitals. We do not hesitate to assert, that he alone can treat diseases of the eye successfully, who understands the derangements of the body, as the greater part of them arise from constitutional causes. It is to the modern surgeon that humanity is much indebted for the relief of many of the diseases of the appendages of the eye that call for practical surgery, and which had been neglected or improperly treated. Entropium is prominent among these.

"A middle aged female was brought into the operating room, on December 11th, 1856 (Thursday, the usual operating day), with entropium of the left eye. The nature of the disease was not readily recognized; this was shown by the circumstance that Mr. Walton asked some of his class to mention the malady, and, not receiving a satisfactory answer, pointed out the peculiarities of the affection, and stated that many cases of the kind were overlooked even by surgeons in practice, and supposed to be something else, and incorrectly treated. Hence, the rule in every case of redness of the eye—and redness was the prominent symptom here—was to examine the organ carefully, and to endeavour to ascertain the true cause, as the redness was a symptom common to many diseases.

"The surface of the eyeball was very red, and the cornea partly vascular and partly opaque. There was much intolerance of light, with lachrymation. A close inspection discovered the eyelashes resting on the eyeball; and this was produced by inversion of the tarsal margin. Here were, then, displayed all the symptoms of entropium—those of the disease, simple inversion of the edge of the lid, and those resulting from it, which are met with in different degrees of severity in different cases.

"We will state very cursorily the pathology of entropium, because, by so doing, the nature of the slight operation which was followed will be better appreciated.

"The inversion has been attributed to relaxation of the skin of the eyelid, thickening of the palpebral conjunctiva, shrinking of the tarsal cartilage, and other ingeniously advocated causes. Mr. Walton regards its immediate cause as the unnatural action of that portion of the orbicularis palpebrarum muscle which covers the action of the tarsal cartilages, and which is thicker, redder, stronger, and more marked than any other part. Among the evidences he advances of the power of the ciliary portions of the muscle to produce entropium, is the very strong one, that a colleague of his can, by the influence of the will alone, invert his eyelids. He has made out some interesting points in the anatomy of the orbicularis palpebrarum not hitherto investigated, and which bear materially on the matter. In the sixth chapter of his work on Ophthalmic Surgery, Mr. Walton says: 'I have founded the treatment on what appears to me to be the pathological interpretation of the affection, and of which the indications are, to overcome the means of this inversion by dissecting away the thick marginal portion of the orbicularis, supposing that part of the muscle to be entirely or nearly all that is at fault; and also, to remove so much of the skin of the lid as may be necessary to produce such tension as shall overcome the deformity which other tissues of the lid may have acquired, from the irregular position into which they have been thrown by the muscle, and which has been made more or less permanent by the changes induced by inflammation.' (p. 165.)

"The operation was performed in the following manner: An assistant stood behind the patient, and made the lid tense by drawing it outwards, and raising the brow. Mr. Walton then made two incisions through the skin and muscle; one along the edge of the tarsus, and close to its cuticular margin, from one angle of the lid to the other; the second parallel to it, about three lines above, and joining it at the extremities. The flap thus isolated was drawn forwards, and slowly dissected off by vertical strokes of the knife from one side to the other. The edges were carefully brought together by four sutures, which were removed on the fourth day. In this and in other operations on the eyelid, by

which we have seen Mr. Walton remove skin—for instance, ptosis and trichiasis—there has not been any trace of the dissection after a few weeks, or sometimes months. This is doubtless due to careful operating with a small scalpel, the incisions being made to match each other, and the skin cut through vertically, besides the equally important essential of accurate and complete adjustment by suture. In the present instance, a week after—that is, on the next Thursday—when this patient was examined, it was impossible to say that the eyelid had been operated on. Literally there was no mark of the operation, and this was the sentiment expressed by all who examined the patient even closely, and several inspected her. The desired effect was completely accomplished in the eversion of the tarsal margin, and the removal of the eyelashes from the eyeball. The lachrymation had disappeared, and the condition of the cornea was much improved. With regard to this latter, Mr. Walton said that in due time it would quite recover itself, there having been no greater mischief done than was repairable by the natural powers. To use lotions, he said, would be to irritate, and therefore to interfere with repair. This is an important fact.”

56. *The Abuse of Irritating Applications in certain forms of Ophthalmia.*—There is an instructive case now under Mr. CRITCHETT's care, in the Royal Ophthalmic Hospital, in which the greatest benefit has been derived from desisting from the measures which had previously been employed. The patient is a lad of 18, to whose eyes, for four years past, stimulating drops had been daily applied, on account of chronic inflammation and thickening of the conjunctiva. His eyes had been kept in a state of constant irritation, and when admitted his vision was very imperfect, on account of superficial vascularity of the cornea. He had been sent up from a considerable distance in the country. Mr. Critchett directed the eyes to be left quite alone, a single seton thread being introduced in each temple. The improvement was extremely rapid, and within a week the greater part of the vascularity had cleared away. No doubt the seton has had some good influence; but looking at the rapidity of the cure, it seems certain that the chief agent has been the rest from injurious applications. Cases more or less similar are constantly presenting themselves, in which, with a perverseness worthy of a better cause, irritating collyria have been employed for periods far too long.—*Med. Times and Gaz.*, Jan. 24, 1857.

## MIDWIFERY.

57. *Labour postponed for Sixty-eight days after the Rupture of the Membranes.*—Dr. W. F. MONTGOMERY relates (*Dublin Hospital Gaz.*, Jan. 15, 1857), the following interesting example of this:—

“A lady who had borne two children menstruated, for the last time, on the 22d May, 1850, and then, becoming pregnant, quickened on the 26th September, and went on perfectly well until the 11th November, when, just as she was going to bed, she became conscious that there was a watery discharge from the vagina, which, as the event proved, was the liquor amnii.

“This occurred at her residence, between eighty and ninety miles from Dublin, and caused her great alarm, as she took for granted that her labour must be at hand, and as I had always attended her, she had a great objection to be confined under any other hands. So strong was this feeling, that she determined to run the risk of travelling up to town, which she did in a railway carriage, accompanied by a medical man, for fear of the worst.

“She arrived safely in town on the 13th, and took up her abode near me; the discharge, which was generally limpid and colourless, but occasionally rose-coloured, continued without intermission; but it was soon observed, contrary to what might be expected, that the flow was greatest when the lady was lying down, and least when she was sitting up, or walking about.

“This, which she was the first to observe, puzzled her very much, and she

pressed me for an explanation, which I did not feel much difficulty in offering, and I told her that I thought the opening, which I presumed was very small, had in all probability taken place very high up, while the lower part of the membranes remained sound; in which case, when she stood up, the water would sink below the level of the aperture, and so not flow out; but when she lay horizontal, there was nothing to prevent its constant escape. The result justified this supposition.

"Her health continued very good, she drove or walked every day, she continued to increase in size, and the motions of the child were, to the last, active.

"On the 18th January, 1851, labour supervened, and was short, and in every respect most favourable. On my arrival, I found a full bag of waters presenting at the os uteri, which was fully dilated, and in about an hour she gave birth to a son, of full size, for eight months, but very white, and he never became rosy, as he ought, after crying strongly, which he did at first; but afterwards he fell into the peculiar incessant wailing low cry, which is always of such evil augury in new-born infants. A wet-nurse was immediately provided, but the child would not suck, nor would it swallow fluids conveyed into its mouth; it gradually grew more feeble and exhausted, and in six hours ceased to exist.

"The placenta was allowed to come away with the least possible assistance, and on floating it in clean water, with its membranes, I found in the latter, within half an inch of the edge of the placenta, a small aperture of about an eighth of an inch in diameter, the edges of which looked as clean cut as if it had been made with a fine punch: this fully explained the peculiarity above alluded to.

"Now, in this case, the daily discharge amounted, on an average, to about five ounces of fluid, and lasted for 68 days, so that there must have come away about 340 ounces, or 21 pints, making nearly three gallons; and it seems reasonable to infer that the debility of the child arose from so much of the vital action which should have contributed to its sanguineous support, having been expended in secreting such a quantity of liquor amni.

"Such a lesion as this is also interesting, as affording a probable explanation of the nature of at least some of those cases, in which abundant serous discharge takes place from the vagina during pregnancy.

"I may mention, as a curious fact connected with this case, that the same accident happened to the lady's mother."

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58. *On a Cause of Vomiting in Pregnancy.* By M. BRIAUX.—The conclusions arising from the following case are—1st, that unmanageable vomitings may be caused by the confinement of the gravid uterus in the hollow of the sacrum; and, 2dly, that these vomitings may immediately cease upon the correction of this irregular condition. M. Briau mentions that several cases of the kind have occurred in the practice of M. Moreau.

CASE.—Madame X—, æt. 25, of lymphatic temperament, well formed, and healthy. Six years ago she was confined of her first child, and everything went on perfectly well. Three years afterwards she was confined again, and on this occasion also she went on well, with the exception of some feelings of *malaise* and vomiting during the first months. A few weeks afterwards, however, she was greatly startled by an accident, and from this time she suffered more or less from leucorrhœal symptoms. Madame X— again became pregnant in March, 1856. About the middle of the month following she began to vomit, and these vomitings progressively became more and more unmanageable, until nothing would remain on the stomach. Throughout the whole month of May she was affected with severe gastralgia, with constipation and continual thirst. Then she began to suffer from frequent cramps and convulsive movements, with sleeplessness and great depression of spirits.

M. Briau was called to the case on the 2d of May, and all the usual means were tried without success. Then an experiment in homeopathy was tried, and with the same result. M. Briau was recalled on the 2d of June, and on this occasion he suspected that the vomiting might depend upon some uterine displacement. He did this partly on account of the continuance of the leucorrhœal symptoms, and partly from the fact that the uterus could not be felt

in the proper position. Two days later, M. Moreau was called in consultation, and an examination made, when it was found that the uterus was in a state of incomplete retroversion, as well as in a state of incarceration in the hollow of the sacrum. This malposition was corrected without causing any pain to the patient, and immediately her former sufferings began to subside. On the same day the vomiting ceased, and some food remained on the stomach. On the night following she slept comfortably. In less than forty-eight hours the belly acquired the usual development belonging to the third month of pregnancy; and, in a word, the patient recovered rapidly, without another bad symptom.—*Ranking's Abstract*, vol. xxiv., from *Gaz. Hebdom. de Méd. et Chirurg.*, July 16, 1856.

## MEDICAL JURISPRUDENCE AND TOXICOLOGY.

59. *Death following the Inhalation of Chloroform in Surgical Operations.*—Mr. T. HOLMES has published (*British Medical Journal*, Jan. 24, 1857) a table of deaths under the influence of chloroform, in the years 1853, 4, 5, which, with the table published in the *Association Medical Journal* for 1853, p. 131, contain the records of fifty deaths under chloroform, occurring during the eight years 1848 to 1855, inclusive. In thirty-nine of these *post-mortem* examinations were made; in the great majority the chloroform was given by qualified medical men.

The following summary of these tables is given (*British Medical Journal*, Feb. 21, 1857) by Mr. Holmes:—

"1. *Sex.*—This is noted in 44 cases: 21 were males, 23 females.

"2. *Age.*—All were persons in the middle period of life; no children; and only one man above the age of 60.

"3. Most of the operations were of a comparatively trifling character.

"4. The chloroform was given on a handkerchief, cloth, towel, or piece of lint, in 27 cases; on a sponge in 4; on an inhaler or other apparatus (not described) in 8; on Dr. Snow's inhaler in 3. In 8 cases the apparatus is not specified.

"5. The quantity used was 3j and under in 13 cases; 3ij and under in 12; 3ij to 3ss in 3; a larger quantity in 8; not specified, 14.

"6. The time is noted in 32 cases: 2 minutes and under in 15 cases; 2 to 5 minutes in 6 cases; 5 to 10 minutes in 6 cases; above 10 minutes in five cases (in one of them, 40 minutes).

"7. The symptoms are intelligibly described in 36 cases.

"In 19 there was no previous struggle; in all of these, except one, the pulse ceased before or at the same time with the inspiration.

"In 17 there was previous struggle; in 4 of these lividity and failure of respiration was next noticed; in 13, failure of the pulse, or of the bleeding from the wound, generally preceded by pallor.

"8. Of 33 cases in which *post-mortem* examinations were made—

"a. Eight, viz., Nos. 15, 22, 31, 32, 34, 42, 46, 50, showed no appreciable morbid appearances, *i. e.* referrible to chloroform; for one (No. 34) is said to have presented extravasation of blood in the spinal canal.

"b. The heart is reported *soft* or *flaccid* in 10 cases, Nos. 3, 9, 16, 19, 20, 23, 24, 27, 30, 46; *fatty* in 9, Nos. 26, 29, 33,\* 35, 36, 37, 38,\* 41, 45. The cases marked thus \* were two of the oldest patients in the list, and the morbid appearance seems not to have exceeded the traces of fatty degeneration usually found at that period of life. The heart was *flaccid* and *empty* in 7 cases, Nos. 2, 5, 8, 9, 10, 14, 48; *full* in 1, No. 1.

"The blood was usually fluid; air was found in it in 3 cases, Nos. 2, 5, 24.

"c. The *lungs* were congested in 14 cases, Nos. 1, 2, 5, 8, 9, 10, 16, 19, 20, 23, 28, 45, 46, 50.

"d. The *brain* was congested in 7 cases, Nos. 1, 14, 16, 20, 23, 28, 44.

"e. *Other viscera* were congested in 6 cases, Nos. 1, 10, 16, 20, 24, 30.

"*f.* There was organic disease in 4 cases besides that of the heart, viz., aneurism, No. 39; phthisis, No. 3; atheromatous arteries, Nos. 33, 38. The latter had also granular degeneration of the kidneys. It will be observed that the latter two had also fatty degeneration of the heart, but to a slight extent.

"In considering the results of the tables of which a summary is here given, there is one thing which must, I think, attract the attention of every reader: I mean the fact that no child or any old person died from the administration of chloroform. This is a forcible confirmation of the view which I was endeavouring to enforce in my previous communication, viz., that most of the fatal accidents from chloroform have arisen from some imperfection in the method of its administration, and are not to be regarded as unavoidable results of its continued use, when that method shall have become better understood and more carefully followed. Otherwise, what cause can be given for the exemption which children have enjoyed? Chloroform is given even more frequently to children than to adults, as the intractability of the former renders its use necessary or expedient in many minor operations (such as passing sounds, exploring diseased parts, etc.), where it is not employed in the latter. Children, again, are affected by a less quantity of chloroform than adults, and are generally more exposed to the influence of narcotics; so that, on all accounts, we should have expected a more than proportionate mortality among them; instead of which, no case is found reported in eight years. I can hardly imagine any cause for this, except that which is found in the fact that every one is aware of the facility with which children are narcotized, the danger of an overdose, and consequently the necessity of caution; and it is not an unfair inference that, if this caution were more generally exercised, the number of deaths would be much reduced. The same observations apply to the other extreme of life. At any rate, we may say that our present experience negatives the doctrine which has been sometimes propounded, that the extremes of age are contraindications to the use of chloroform.

"Among other contraindications which have been mentioned, the one most frequently admitted is disease of the heart, especially fatty degeneration. I think our tables will show that, at any rate, too much stress has been laid upon this point.<sup>1</sup> We may at once admit that extensive disease of the heart, or of any other important organ, contraindicates surgical operations, either with or without chloroform; in fact, contraindicates anything which by its reputed danger may alarm, or even by its novelty unduly excite, the patient. Unfortunately, however, operations are sometimes necessary on such subjects, and then only a choice of evils remains. The statistics, however, only show<sup>2</sup> nine cases, out of thirty-nine examined after death, in which a fatty condition of the heart is asserted to have been observed; and in two of these it seems quite evident that it was not more than the trace of degeneration almost always found at that age (an age, be it observed, in which chloroform is safely given every day); and in only one is it stated that the disease was extensive. The evidence, therefore, that the fatty degeneration which was found in this small minority stood in the relation of cause to the fatal result, is very deficient. The common sense view of the matter would appear to be, not to incur the risk of giving chloroform to a person evidently the subject of extensive disease (fatty or otherwise) of the heart, unless the severity of the operation, or the fear entertained of it, should threaten an even more dangerous shock to the system; and, in the latter case, to watch its administration carefully, stopping just beyond the point where reflex motions are abolished.

"Again, disease of the lungs is mentioned as a contraindication; but there is little evidence on the point, and that little does not give much support to such an opinion. In a case of fracture of the spine in the cervical region (where all the muscles of respiration, except the diaphragm, would be paralyzed, and

<sup>1</sup> The observations here made with respect to fatty disease of the heart, apply also to valvular lesion and other morbid states of that organ. It will be noticed that no such cases are reported in this table.

<sup>2</sup> I have no doubt that, in some of the cases in which the heart is reported soft or flabby, microscopic examination would have shown traces of fatty degeneration.

where, as the fracture had existed for many days, the lungs would be much congested), Mr. Jones, of Jersey, submitted the patient to the full influence of chloroform during the space of half an hour or more, without any detriment. (*V. Medical Times and Gazette*, 1856, vol. ii.)

"Still less reason have we for regarding disease of the brain as an absolute contraindication. In functional disease of this organ (delirium tremens, epilepsy, etc.), chloroform is known to exercise a highly beneficial influence; and I have seen it administered with safety in a case of extensive fracture of the skull and laceration of the brain, during an operation which would otherwise have been difficult from the patient's restlessness. We should not forget, however, that in most of the cases where *post-mortem* examinations have been made, the prominent morbid appearance has been congestion; and that, therefore, all diseases or morbid states of the system which predispose to congestion are so far contraindications to the use of chloroform. The most usual, as well as the most dangerous of these conditions, is that which accompanies habitual intemperance. It will be seen that many of the patients whose deaths are recorded in the above table were known to have been persons of intemperate or otherwise dissolute habits; and I have no doubt that if more accurate information were attainable, we should find this to have been the case in a much larger proportion.

"Does chloroform exercise any secondary effect unfavourable to the healing of wounds? This is a question asked by no less an authority than the College of Surgeons, in their last examination for the Fellowship, and it is a point which has been mooted elsewhere. It is a matter of considerable interest, and one which well deserves attention and dispassionate investigation. I must confess that I have watched many hundreds—I may say thousands—of cases of wounds made under the influence of chloroform, without seeing any proof of such effect; and, further, I have questioned many men of large experience in operative surgery, without meeting with any person who has observed this supposed secondary action. Nor does it seem, *à priori*, probable that a single dose, however strong, of so volatile a substance as chloroform, should permanently modify the healing process, while all other effects of its administration are allowed to be transitory. As to its other subsequent effects, every one knows that it frequently produces sickness. This effect, however, is much less common when it is given in the way above described, than when administered without precaution, and therefore irregularly and in unnecessarily large doses.<sup>1</sup> Sometimes, also, alarming fainting fits follow its administration. The cases of this nature which I have seen have occurred to weakly females; but I have heard of a similar instance in private practice, in the case of a well-known member of Parliament, a man of considerable mental and physical vigour. I have never heard of a fatal termination to these fits, nor of any subsequent ill consequences.

"It being admitted, then, that chloroform is in some degree dangerous to life; that it has an irritating effect on the stomach; that it sometimes causes severe nervous symptoms, especially in hysterical females; and that, in persons disposed to congestion of the brain, it increases that tendency to an extent which is often at least unpleasant, if not alarming—we have next to inquire what is the value of the means which it has been proposed to substitute for it. The undoubted superiority of chloroform to sulphuric ether may be considered established by the fact of its having so rapidly and so entirely superseded that drug. The question of the value of amylene as an anæsthetic is one which can hardly be answered confidently without more information than our present experience supplies us with. As to the congestion induced by chloroform, which is, in my opinion, the principal drawback for its use, I cannot say that, in the cases which I have seen of the administration of amylene, I have observed much improvement in that respect. Many of the patients have shown even

<sup>1</sup> At St. George's Hospital, the average quantity for the ordinarily severe operations is ʒij, and for others a less quantity. I have noted amputations of the thigh and arm, in lads about the age of puberty, done (and without hurry) with the expenditure of only ʒj of chloroform. I speak, of course, of the quantity expended. Far less than this passes into the blood.

more lividity of the face and more struggling than is usual under chloroform. The number of those who suffer from sickness is indeed, as it appears, less when amylene is used. Out of sixty-two patients, only two had suffered from sickness, and that only of a trifling character. The recovery is undoubtedly more speedy; but it may well be questioned whether that is an unmixed advantage; and the action of the drug in producing anæsthesia cannot always be depended on. Among the small number of cases as yet submitted to its action, I have heard of several in whom no anæsthetic effect has been produced. This, however, might have been from the inefficiency of the apparatus; for I believe that without a properly contrived inhaler, whereby a sufficiently powerful mixture of the vapour and the atmospheric air is induced, this failure will be constant. On the whole, I am inclined to suspect that chloroform will hold its ground against the newly introduced agent, the peculiar odour of which will alone prove a powerful obstacle to its introduction into private practice. The local application of freezing mixtures, as recommended by Dr. Arnott, is the only substitute that I know of for chloroform to which no sound objections have been hitherto made; but this is only applicable in superficial operations, and has certainly the drawback that, as it leaves the patient perfectly conscious of all the preparations for the procedure which he dreads, nervous people suffer under its use nearly all the terror which they would without an anæsthetic; and this terror is perhaps the most painful part of these trifling operations. I cannot help thinking that the limited extent to which a method so easy, so free from danger, and so confessedly effective in these minor operations, has been adopted, is a proof that the profession at large have come to a different conclusion as to the dangers of the plan it was intended to supersede, from that adopted by its ingenious author.

"I must now bring these observations to a close. My object in them has been to show what the mortality after chloroform has really been, and to inquire whether the results of *post-mortem* examination have given us any clue for assigning it to its efficient cause. In reference to these two points, I believe the facts before us show—

"1. That the reported mortality in the British Islands has been less than six *per annum*; that a great number of these cases occurred in private practice; and that, as many of them were disclosed by coroners' inquests, it seems probable that we do really hear of most of the fatal cases which occur in the United Kingdom.

"2. That the *post-mortem* appearances have not been sufficient to indicate any uniform cause of death; that the importance ascribed usually to fatty degeneration of the heart is greater than experience would warrant; that, from the number of cases of persons previously in perfect health, and the rapidity with which death was produced, there is a strong presumption that the result was due to imperfect methods of administration, or carelessness on the part of the administrator. Further, from the experience of hospitals in which a rational method has been adopted and due caution exercised, we are justified in believing that chloroform is as safe in its action as any drug which produces narcotism by mixing with the circulating blood can in the nature of things be expected to be."

60. *Slow Poisoning by Chloroform.* By M. CHASSAIGNAC.—In certain patients, the action of chloroform has consecutive effects, not far removed, but which nevertheless do not produce their peculiar dangerous consequences, until about sixteen, twenty-four, or forty-eight hours. It would seem in these cases that the injury done to the vital forces by the chloroform has been so profound that the patient could not recover from it. He recovers, it is true, from the primitive anæsthesia; but he remains in such a state of half-stupor and prostration, that he succumbs in the short periods that we have just mentioned, without our being able to account for it by the fact of hemorrhage or of penetration of air into the venous system; nothing, in a word, can give the cause of death if one does not attribute the fatal termination to a certain extent to chloroform. The only circumstance which, in the cases of which we have just spoken, could be mentioned as the cause of death, except chloroform, would be that ex-

haustion of the nervous power noticed in his time by Dupuytren, but which will remain always something very vague, very mysterious, and very contestable.

The cases in which we have observed what we should call consecutive deaths—a species of slow poisoning by chloroform, refer to operations performed upon old persons or upon subjects extremely debilitated. It was also at the end of those operations that we call “*siderantes*,” to show to what degree they act upon the general state of the powers and upon the entire economy; for example, operations for strangulated hernia, for the removal of large tumours from old and debilitated persons, and upon persons wounded with fire-arms. The number of these facts (still inconsiderable)—their doubtful interpretation—the coincidence of the employment of chloroform with an operation in itself very grave, impose upon us a great reserve, and do not permit us to form conclusions. These are suggestions which we submit to the consideration of practitioners; because we believe it our duty to do so at present, in order to awaken their attention to a cause of death so much the more formidable that it remained unperceived. Until more fully informed, we will admit the possibility of a slow or consecutive poisoning by chloroform.—*Lancet*, Feb. 21, 1857.

61. *Experiments on the Poisonous Properties of Nicotine and Strychnine*.—At a meeting of the Royal Irish Academy, Nov. 29, 1856, Professor HAUGHTON read the following account of some experiments on the poisonous properties of nicotine and strychnine:—

“I was induced to make the experiments which I now bring under the notice of the Academy, by the consideration of the specific actions of strychnine and nicotine upon the muscular system, which appeared to be so opposite in their character as to lead me to a conviction that they might prove to be, mutually, antidotes to each other’s action. It is generally believed that strychnine exerts a specific action upon the lower or lumbar portions of the spinal column, exciting the muscular system (at least the voluntary muscles) into a state of tetanic contraction, and ultimately producing death indirectly, by rendering respiration mechanically impossible, by virtue of the permanent contraction of the pectoral muscles; and not, as was once supposed, by its action upon the heart. It is also well known that the most powerful agent we possess for relaxing the action of the muscles is nicotine, whether administered in the form of tobacco smoke or infusion of the leaves. From these well-known facts I was led to believe that these powerful poisons might be used as antidotes to each other’s action, and with the view of testing this conjecture, I made the following experiments:—

“*First Experiment—Nicotine*.—A bath, consisting of 5 $\frac{3}{4}$  of water, holding dissolved 5 grs. of nicotine of sp. gr. 1012 was prepared, and in this mixture a frog was immersed; in fifty-six seconds the animal became narcotized and apparently incapable of motion; but on being excited and stirred, it was evident that life was not extinct, and the pulsation of the heart did not cease until twenty-three minutes after immersion. The anterior extremities became paralyzed first, accompanied with a quivering of the fore-legs, and then the hind-legs were drawn up so as to reduce the animal to the smallest possible compass. At the time of death, the belly and hind legs became suffused with a pink tint, which was rapidly diffused, commencing at the thighs. After death, the mouth remained closed, and the eye continued very brilliant and life-like, the pupil being apparently dilated.

“*Second Experiment—Nicotine*.—A solution of nicotine was formed, consisting of 5 grs. of nicotine to 20 $\frac{3}{4}$  of water, and a frog immersed as before, leaving his head above the water; in three minutes and a half he became quite paralyzed, as before, placing the fore-legs upon his back, with the palms upwards. Death finally ensued in forty-three minutes, with the same appearances as those described in the first experiment.

“*Third Experiment—Strychnine*.—In this experiment, 5 grs. of pure strychnine were dissolved in a minimum of muriatic acid, and 5 $\frac{3}{4}$  of water added; a frog was placed in the bath thus formed, with the following results: Tetanic convulsions set in immediately upon his touching the liquid, and continued

while life remained; there was no sign of opisthotonos, but strongly marked emprosthotonos. The animal was quite dead in four minutes, mouth open, and eye closed and death-like; the whole body stretched out and bent forwards, the back being highly arched.

"*Fourth Experiment—Strychnine.*—A bath was made of 5 grs. of strychnine and  $2\frac{1}{2}$  of water, and a frog placed in the solution, as before. The animal became speedily convulsed, and exhibited the symptoms as in the former case; but in this case death did not finally take place until after an interval of forty-five minutes. The mouth was open, the eye closed, and the body arched, and bent forward as before.

"*Fifth Experiment—Nicotine and Strychnine.*—In this experiment two baths were prepared, one of 5 grs. of strychnine to  $5\frac{1}{2}$  water, and the other 5 grs. nicotine to  $5\frac{1}{2}$  of water, and the two solutions carefully mixed together. A frog was now introduced, and remained apparently without inconvenience for nineteen minutes, when the strychnine began to operate, and then first tetanic convulsions appeared; the usual appearances of strychnine poisoning continued, but with less violence than in the former experiments. After forty-seven minutes the animal was removed from the bath and washed with cold water; he lived afterwards for upwards of twenty-four hours, exhibiting at intervals tetanic convulsions.

"*Sixth Experiment—Nicotine and Strychnine.*—Another frog was placed in a mixed bath of nicotine and strychnine of the same strength as that last described, and removed after an interval of ten minutes; after removal in thirty-two minutes, the first symptom of emprosthotonos appeared, and the convulsions continued for many hours, but the animal ultimately recovered completely, and is still in the enjoyment of health and life, after the lapse of many days.

"The last two experiments appear to me conclusive as to the action of nicotine in retarding, and, in certain cases, completely counteracting the effects of strychnine.

"In the fifth experiment, a frog had lived for forty-seven minutes in a mixture of two solutions, of which one would have destroyed life in four minutes, and the other would have produced paralysis in one minute, and destroyed life in twenty-three minutes; and yet, in the mixture, the animal lived forty-seven minutes, and afterwards for twenty-four hours. In the sixth experiment, the frog, immersed in a similar mixture of the poisons for ten minutes, had ultimately recovered, the effect of the strychnine being completely obviated by the action of the nicotine. I consider that these facts, which have come under my notice, give rise to much interesting speculation, into which, however, I have no desire to enter, as I prefer leaving such topics to those who are more immediately concerned in them. I hope that further inquiries will be instituted into the action of strychnine and nicotine upon some of the warm-blooded animals, as I believe that in nicotine, which is always easily procurable in the form of tobacco-leaf infusion, will be found a valuable antidote in at least some cases of strychnine poisoning, whether intentional or accidental."—*Dublin Hospital Gazette*, Dec. 8, 1856.

62. *Effects of Tartar Emetic upon the Muscular System whilst under the influence of Strychnia.*—Dr. JOHN H. POWER communicated the following case to the Surgical Society of Ireland (Dec. 13, 1856), which has an important bearing on the subject of poisoning by strychnia.

"Anne Clive, a young woman, was admitted into the Richmond Hospital for a nervous affection of the extensor muscles of the forearms. The flexor muscles were in a state of contraction. The hand was clenched. She was ordered the sixteenth of a grain of strychnia and two grains of compound rhubarb pill in one pill every sixth hour. She stated that she took about thirty pills. On the morning of the 30th May, 1843, she stated that she had a confused feeling in her head, indistinct vision, and that she could not walk. She then had a general jerking of the muscular system; the lumbar mass acted violently, resembling opisthotonos. There was corrugation of the forehead, with peering of the eyes, flushing of the face, and dilatation of the pupils.

"For the treatment of these symptoms she was ordered to be bled at the arm to the extent of six ounces; and tartar emetic in small doses was administered. The spasmodic symptoms passed off. The tartar emetic was discontinued. Next day the tetanic or spasmodic symptoms reappeared; they, however, gradually disappeared, and the patient ultimately recovered.

"This case produced a strong impression on my mind, and although thirteen years have now elapsed since its occurrence, I have a distinct recollection of all the leading particulars connected with it.

"I have carefully abstained from any attempt to work up an elaborate history of this case, though I might do so by drawing a little upon my memory; I have, however, preferred the reading of the few short notes which I find recorded in the very language which I have laid before the meeting.

"From this simple record, I think the following conclusions may be fairly drawn:—

"1st. That the internal administration of tartar emetic is capable of producing a complete relaxation of the muscular spasms which result from the exhibition of strychnia; that in fact it is capable of *masking* the external manifestations or sensible symptoms of poisoning by strychnia.

"2d. That though the administration of tartar emetic may, as it were, keep in abeyance these symptoms of poisoning by strychnia, yet it may not possess the power of removing the poison from the system, or of effecting its complete neutralization.

"3d. That the tetanic spasms which are the result of strychnia may disappear under the influence of tartar emetic; but may reappear on our ceasing to administer that medicine.

"4th. That strychnia may become cumulative in the system, so that its characteristic effects may manifest themselves after an absence or quiescence of several hours.

"5th. That, at all events under the influence of a remedial agent, there may be a long intermission between the occurrence of the spasms.

"6th. That the peculiar characteristics of the tetanic countenance, as seen in idiopathic and traumatic tetanus, may manifest themselves in the tetanus of strychnia."—*Dublin Med. Press*, Jan. 7, 1857.

63. *Infarction of Renal Tubuli with Urates in an Infant.*—Dr. W. H. WILLSHIRE exhibited the kidney of a child, showing commencing "infarction" of the tubuli uriniferi by uric acid salts. It illustrated a point, he said, in the history of commencing extra-uterine life, which had been lately much discussed in Germany, but had been investigated in England and France. Dr. Willshire believed that this was the first occasion the particular condition of the renal organs, now before the Society, had been publicly demonstrated. The present specimen was also interesting, from the fact that it formed the third which had been recorded of a necessarily small sub-group of examples in the general class of cases to which he alluded. It was taken from a child that had died *in partu*, after having breathed, and went to show that "renal infarction" might, at least, commence in the living child after labour had begun, and previously to its entire separation from the maternal system. Hitherto, 428 infants had been examined in connection with this question; of these, 113 were dead-born, and not one exhibited the renal infarctus; 216, living from one to sixty days, exhibited it; two dying during birth (the present being one), and one soon after the birth, showed the infarction commencing. The remainder presented no traces of it. Many points of much interest were connected with the subject, and not the least so the question as to how far the condition of the kidney he exhibited could be employed in a forensic argument in a case of suspected infanticide. Dr. Willshire stated that circumstances had occurred in connection with the supra-renal capsules in the present case which led him to attach weight to the late statement of M. Brown-Séquard, that these organs have to do with "pigment formation," and, consequently, to support some recent views of Dr. Addison.—*Assoc. Med. Journal*, Nov. 1, 1856.

## MISCELLANEOUS.

64. *Influence of Temperature on Mortality.*—In reference to certain classes of disease, the following table, supplied by the Registrar-General, is of great interest, showing the deaths in London in 10 cold and 10 warm days.

AGES.	ALL DISEASES.		Consumption.		Bronchitis, Pneumonia, and other Lung diseases		Heart Diseases.		Brain Diseases.		Other Diseases.	
	10 cold days.	10 warm days.	10 cold days.	10 warm days.	10 cold days.	10 warm days.	10 cold days.	10 warm days.	10 cold days.	10 warm days.	10 cold days.	10 warm days.
0—	755	612	10	4	225	176	1	1	69	73	450	358
5—	49	50	4	5	2	6	2	4	3	2	38	33
10—	67	48	18	17	4	2	4	4	5	1	36	24
20—	248	210	112	71	36	27	19	12	6	12	75	88
40—	299	242	75	54	88	71	20	12	29	36	87	69
60—	347	261	13	1	128	90	26	17	57	41	123	102
80 and upwards	79	82	—	1	19	22	1	1	1	7	58	51
Total . . .	1844	1505	232	163	502	394	73	51	170	172	867	725

The mean daily temperature of 10 cold days was 33°.6.

The mean night temperature of 10 cold days was 26°.9.

The mean daily temperature of 10 warm days was 51°.1.

The mean night temperature of 10 warm days was 46°.9.

The general result is that the deaths in London during 10 *cold* days were 1844, while the deaths in the 10 *warm* days were 1505; the excess of deaths in the cold days was nearly 34 daily. Under 5 years of age the mortality was increased by cold one-fourth; at the age of 5—10 there was no increase; at 10 and under 20 the increase was one-third; at 20—40 one-sixth; at 40—60 one-fifth; at 60—80 one-third; at the age of 80 and upwards no effect appears to result from cold temperature.—*Med. Times and Gaz.*, Feb. 21, 1857.

## AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Urine in Fœtal Life.* By GEO. T. ELLIOT, Jr., M. D., Physician to Bellevue Hospital, New York.—On examining the body of a stillborn, forceps-delivered child at Bellevue Hospital, the bladder was found distended, and mounting above the pubes. It was carefully held up with forceps, punctured, and the contents withdrawn in a new glass syringe of large size without the admixture of blood; and then injected into a perfectly clean phial. It was of a very pale straw colour, like clear syrup in consistence, and with no smell of urine, and deposited no sediment. Litmus and turmeric paper showed it to be acid. A bottle adapted to measure the specific gravity of one hundred grains of distilled water showed the same quantity of the urine to weigh  $100\frac{1}{4}$  of a grain, which would give by ordinary measurement a specific gravity of 1007.5. Prolonged boiling in a test tube, and the addition of nitric acid gave no traces of albumen; the addition of the acid produced a slight deepening in colour. A portion of the urine subjected to Trommer's test, gave no evidences of sugar. Under the microscope some granules, or broken crystals appeared, believed from the colour to be uric acid. Some pavement epithelium; no oil globules; no renal epithelium.

A few drops allowed to evaporate on a glass slide gave well-marked dagger shaped crystals of the chloride of sodium.

Some nitric acid was added to a small quantity of the urine, and then a few drops of a strong solution of the nitrate of silver; when a whitish precipitate becoming gradually dull on exposure to the air was thrown down; believed to be the chloride of silver and to afford additional evidence of hydrochloric acid.

A few drops of ammonia being added to some urine on a glass slide gave a deposit under the microscope of minute granules in masses, slightly yellowish in colour by transmitted, and white by reflected light, which were dissolved by hydrochloric acid. They were assumed to be the phosphate of lime.

The addition of oxalic acid produced no crystals of the oxalate of lime; nor indeed did any of these crystals exist originally in the urine.

Some urine being placed on a glass slide, a few drops of a solution of the oxalate of ammonia were added. Under the microscope some fine amorphous granular matter was detected, but no crystals whatsoever.

No urate of ammonia detected.

Some urine was placed in a test tube and a few drops of nitric acid added, when it was allowed to stand for twenty-four hours. Numerous well formed crystals of uric acid were then found under the microscope, some rose, some barrel-shaped, with amorphous granules similar to those elsewhere described.

About two drachms of urine were placed in a watch glass, and evaporated to about one-half; when about one-fourth of its bulk of nitric acid was added, and allowed to stand in a cool place for twenty-four hours, when very numerous well formed crystals of the nitrate of urea were seen.

Some urine was placed in a watch glass, and about ten grains of oxalic acid added. This was allowed to evaporate in a cool place, and on the fol-

lowing morning numerous well-formed crystals of the oxalate of urea were displayed under the microscope.

An unsuccessful effort was made with nitric acid and a solution of the chloride of barium to determine the presence of sulphuric acid.

In order to procure crystals of the triple phosphate, the remainder of the urine was allowed to stand in a warm place for three days; when it emitted a putrid odour, and showed vibriones in motion, but none of the crystals sought for.

The above facts were all that could be observed with the small quantity of urine obtained. The examinations were under the direction of my friend Dr. Chas. E. Isaacs of this city, in the presence of Dr. Catlin; and a doubtful point in the detection of sulphuric acid decided by Prof. Doremus.

The observations of Dr. McClintock contained in the *Dublin Quarterly* for 1849,<sup>1</sup> do not agree with the one just narrated. Dr. McC. says "the urine before birth differs in its chemical constitution from that subsequently in two very remarkable particulars, viz: 1st in containing a large quantity of albumen; and secondly in being almost, or altogether deficient in urea."

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*Ascites successfully Treated by the establishment of a Fistulous Opening.* By E. P. BENNETT, M. D., Danbury, Conn.—I cannot say that the subject of this case is radically cured, although he is restored to robust health and active usefulness; but I consider the course of treatment pursued so remarkably successful as to merit to be reported, and that a still further trial of the curative process should be adopted. The patient was a middle-aged lady from a neighbouring town (Wilton), married, but childless, never having been pregnant. She had not entirely ceased to menstruate, but had become quite irregular, not in consequence of any disease, but of her period of life. She had usually enjoyed good health. She consulted me in the month of March, 1856, for what she supposed to be ovarian dropsy, and wished an operation for its removal. Her disease was of from three to four years' standing. She was tapped about a year ago, but owing to the great viscosity of the fluid, but little was removed, and that little rapidly reaccumulated.

From the history of her case, and from a careful examination of the state of the thoracic and abdominal viscera, I came to the conclusion the patient had ascites from chronic inflammation of the peritoneum, and proposed to try to cure her by the establishment of a permanent drain from the abdominal cavity and by injections. Having candidly expressed to her the desperate character of the case, and the treatment I proposed to pursue for her relief, she readily gave her consent. I accordingly made an incision about three inches in length, commencing just below the umbilicus; through this opening I managed, after a little time, to remove the gelatinous contents of the abdomen to the amount of an ordinary pailful. I then, with a large syringe, washed out the peritoneal cavity thoroughly with warm water, and in this way removed, as far as possible, all the remaining gelatinous matter. Introducing my fingers through this opening, I carefully examined the abdominal organs as far as possible, but I found the peritoneal surface rough, and the bowels so agglutinated together as to prevent a very critical examination. I then threw into the abdominal cavity four ounces of saturated tinct. of iodine, which I retained for about ten minutes, and then suffered it to escape.

This may at first thought appear to be heroic practice, but it must be borne

[<sup>1</sup> See this Journal for July, 1849, p. 245.]

in mind that there was yet a considerable quantity of this tenacious fluid adhering to the intestines, thereby preventing the full influence of the iodine on the peritoneal membrane. I now placed in the wound a leaden tube of sufficient size to allow the fluid to flow freely through it, brought the wound together with adhesive straps, put a bandage firmly round the body, and placed the patient in bed. Chloroform was used, and she passed through the operation finely. I immediately placed her upon a nutritious diet, with porter *ad libitum*. The abdominal cavity to be after three days daily injected, varying the injection as the case required, sometimes using iodine, then decoction of oak bark, tannin, &c. The abdomen to be rubbed with unguent. proto-iodide of mercury. The improvement under this treatment was remarkable. In two weeks from the time of the operation she left for home, was able to be about the house and engaged in some light household affairs, her appetite was good, and her strength returning. During this time a copious discharge was going on from the tube, of a glairy fluid, very offensive to the smell. Occasionally flakes of cheesy matter would appear at the mouth of the tube, blocking it up, which would have to be pulled away.

Things went on much in this way for about two months, when she began to fail. She lost strength, both legs and one arm became œdematous, and I was thoroughly discouraged with the aspect of the case. I, however, determined to persevere to the end; so I pinioned her legs down, prescribed a stimulating diuretic, and removed the tube. I should here say that, after her return home, she was under the immediate care of her family physician, Dr. Sylvester Mead, who carefully watched over her case, and who faithfully carried out the course of treatment recommended, and by his skill and fidelity was of very great service in bringing the case to a happy termination. Soon after I removed the tube, a large mass of flaky matter appeared at the opening, and was removed. After this the discharge naturally lessened, lost its offensive smell, and became thin and watery. The œdema of the limbs subsided, she gained rapidly in health and strength, and in the month of October she stood before me a stout, healthy, and happy woman.

The fistulous opening still remains, and discharges a small quantity of thin inoffensive fluid. The success in this case has been so eminent that, should another similar case present itself, I should not hesitate a moment to put in practice again the same course of treatment. In cases of ascites from disease of the heart, liver, kidneys, or any other of the thoracic or abdominal organs, such a course of treatment would, of course, be of no avail. Consequently, the state of these organs should be closely scrutinized before making up your mind to such a course of treatment.

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*Complete Inversion of the Uterus of thirty-one hours' standing restored under the influence of Chloroform. Recovery.* By E. P. BENNETT, M. D., of Danbury, Conn.—Mrs. Shepard, of Newtown, was delivered in August last at full time, after an ordinary labour. Her attending physician, Dr. Judson, says the placenta came away without any difficulty or pulling at the cord, and he left her comfortable. Forty-eight hours after this she arose from her bed and got on to a vessel to evacuate her bladder, when complete inversion of the uterus took place. I saw her thirty-one hours after. She was very pale; pulse small, rapid; look anxious, and complained of feeling very weak and bad. The uterus had been pushed up into the pelvis and left; it could not be felt above the pelvis, but a firm ring and cuplike depression occupied its place, and could be distinctly felt. In fact, the finger could be pushed down into the inverted organ, carrying before it the thin abdominal walls. Under

the influence of chloroform, after long continued and persevering efforts, I succeeded in restoring it to its place, and the woman recovered.

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*Remarkable Case of Mental Influence of the Mother upon a Fœtus in Utero.* By W. J. HEDDENS, M. D., of Barbourville, Ky.—In the third or fourth month of Mrs. H.'s second pregnancy, her house-servant, a yellow girl, was badly burnt about the eyes, causing considerable ecchymosis of the areolar substance around the eye, and causing active arterial congestion of the conjunctiva towards the outer canthus, and presenting that peculiar expression of a "gouged" eye. Mrs. H. is of a highly nervous and impressible temperament, with a cultivated mind. The sight of her maid produced, as she expressed it, "a mental agony, and made her feel sick and faint whenever she saw her." She was afraid the child would be *marked*.

I attended her in her accouchement, and her labour was easy and natural. But, much to my surprise and to her horror, the child *was marked* upon the conjunctiva of both of its eyes. Its left eye presenting a vivid scarlet crescentic appearance upon the conjunctiva in the outer part, and the right eye having very bright scarlet spots under the inferior lid.

I am quite sure the eyes received no external injury from the time of birth up to the time when I first noticed this appearance. It is equally impossible that any aerial matter could have gotten into its eyes. *The mother was free from all disease.* I have always been a disbeliever in the popular notion of the fœtus being affected by impressions of a mental or moral kind made upon the mother; but this certainly is a strange case, and as the profession are divided, I am induced to lay it before them, as being, so far as I know, a unique one; such as have been reported being of arrested development, or of morbid nutrition. The eyes have improved in appearance by the use of collyria; its vision has always been perfect.

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*Chloroform in Delirium Tremens.* By W. M. CHAMBERLAIN, M. D., of Astoria, L. I. (Late in charge of Blackwell's Island Hospitals.)<sup>1</sup>

During the year 1853, 960 persons, in the various stages of debauch, were sent to Blackwell's Island hospitals by the police courts of the city. Almost uniformly such belong to the lowest class in society—prostitutes, thieves, "fighting men," and broken-down vagabonds, who revolve in fixed orbit through their dens of vice and the charitable institutions of the city. Excess, privation, exposure, and chronic disease, are the staple facts of their lives.

They arrive at the hospital generally on the second, often on the third day after they have been arrested, or picked up by the police. Meantime they have been confined in the station-houses and in the "Tombs," in cells often dark, cold, wet, and comfortless; cut off from all stimulus; unable to take, and sometimes to find food; oppressed with their degradation, a prey to "horrors," and the scarcely less horrid vision of months of imprisonment. It is not strange, then, that a large number of aggravated cases of delirium tremens occurs among them. Of the 960 mentioned above, but 200 are counted on the books of the hospital as cases of delirium tremens. It was

<sup>1</sup> This paper, which originally appeared in a journal of limited circulation, has been rewritten and condensed, and communicated to us by the author. We insert it, that our readers may be in possession of all the facts bearing upon the question of the utility of the inhalation of chloroform in the treatment of delirium tremens.

The cases here related, with those detailed in the paper by Dr. Garrett (at p. 317 *et seq.*) in this No., seem to justify a further cautious trial of this mode of treatment.  
—ED.

intended to *exclude from this list every equivocal case*; and of the remaining 760, credited with debauch simply, it is believed many might, with much propriety, have been counted as subjects of the graver malady.

It may not be amiss to introduce the elements of an average case of debauch, in this connection. They are somewhat as follows:—

A. B. presents herself at 5 P. M. She is pale, weak, and tremulous. Has been drinking constantly and largely for a week. Since her arrest, 36 hours have elapsed. She had no sleep, and has been unable to take food. Her pulse indicates irritation and asthenia. The skin is cool, the tongue moist and pale. Last night she suffered frightful hallucinations. She craves liquors, dreads the coming night, and fears she shall die. From the warm bath, she is removed to a warm bed. Three pints of warm infusion of hops are given her. This acts gently but effectually in three ways: first, as an emetic; second, as a diaphoretic; third, as a hypnotic. When her stomach is quit, after the vomiting, two or three compound cathartic pills are given her. An hour or two after, she is offered some bread and tea, or some beef-tea; and still later, is required to drink a full draught of ale, containing a drachm of laudanum. Early in the night, she sinks into comfortable sleep, which continues late in the morning. The bowels move, the nervous disturbance is abated, the appetite returns. She has a pint of ale with her food during the day, sleeps well again, and is discharged on the morrow, to recover her perfect strength and health gradually. The case thus managed is a slight affair; neglected, it would probably have been delirium tremens. Those hereafter cited are delirium tremens *of extreme severity*; and must not be considered, in any sense, *average*. *The appeal to chloroform was held to be dangerous, and never accepted save as the "ULTIMA RATIO MEDENDI."*

On admission, patients receive a warm bath, a bed, and light food, if they desire it from the attendants, before the evening visit of the physician, at 7 P. M. The "punch" mentioned in the reports, except where otherwise specified, consists of a pint of milk, two ounces of brandy, and q. s. of sugar. The chloroform employed was that manufactured by Powers & Weightman, Philadelphia. These items premised, we submit the cases for what they may be worth.

In the following case, chloroform was employed. After due preparation, treatment was commenced with narcotics and stimulants. Diligent use for 30 hours showed the insufficiency of these agents. A single administration of chloroform "jugulated" the disease. This case is introduced as the type of a large class.

CASE I.—*Aug. 10, 1853, 7 P. M. Physique.*—I. P.; 28; white; Irish; butcher; height, 5 feet 10; weight, 145 pounds; temperament, bilious-nervous; condition, good. A habitual drunkard for many years. Has been drinking brandy freely and working in ice-houses. Presents the ordinary characters of delirium tremens. Is perfectly wild and unmanageable.

*Treatment.*—After freeing the stomach and bowels, ordered tr. opii fʒj every hour, for five hours, unless he should sleep; and a small quantity of stimulus.

11th A. M. Treatment continued. No sleep or improvement. 10 P. M. No improvement. Chloroform administered with ease, and happy effect.

12th. Slept nine hours.

20th. Is well.

The second case was more aggravated than the preceding. True delirium tremens, partially subdued during the first night of observation, progressive in intensity during the following 36 hours, under the ordinary treatment;

becoming critical on the third night; resisting the repeated use of chloroform; persistent under the full effect of opium, on the fourth day and evening; and finally subdued by the anæsthetic, on the fourth night.

CASE II.—Dec. 23, 1853, 7 P. M. *Physique*.—S. B.; æt 32; white; English; height, 5 feet 8; weight, 165 pounds; book-keeper; dark hair and eyes, regular features, rather full habit; bilious-lymphatic temperament, with tokens of the scrofulous diathesis. A man of habitually intemperate habits, for the past three months in a constant debauch.

*Symptoms*.—Little or no excitement; skin and bowels inactive; prostration well marked: tremor of limbs and tongue so great that he cannot stand, lift a glass to his lips, or articulate his words. Motions not unlike those of cholera.

*Treatment*.—Emesis with inf. hum. lup. R.—Ol. ric. f3j, tr. opii gtt. 100. Punch through the night.

24th, 9 A. M. Slept two hours; is quiet, but wandering. Tr. opii gtt. 120. Punch and ale. 7 P. M. Condition and treatment the same.

25th, 9 A. M. Did not sleep at all. Is more delirious. Continued stimulus. R.—Tr. opii gtt. 40, every hour for five hours. 10 P. M. Very delirious; skin blanched; perspires abundantly. Chloroform by inhalation. Anæsthesia continues but fifteen minutes. This should not be misunderstood to mean *five distinct* administrations of chloroform, but an attempt for 2½ hours, to secure the full effect of chloroform, comprising four or five brief periods of moderate anæsthesia. Repeated four times in two hours, without permanent effect. Condition as before inhalation, or somewhat worse. Ordered him to be freely fed with strong milk punch, and to take tr. opii gtt. 50.

26th, 9 A. M. Did not sleep at all. Continue opium, gtt. 20, hourly, and stimulus. 10 P. M. Sleepless and furious; pupils a point. Chloroform by inhalation, to the approach of stertor. Spasm and laryngismus during its exhibition. Effect transient. Repeated: effect permanent.

27th. Slept 7 hours; is calm and rational, still under the effect of opium.

28th. Delirium tremens no longer. Under treatment for constitutional syphilis.

The third case is more violent than the preceding, but otherwise a parallel (except in the *internal* use of chloroform), until the night of the 25th of January. At that date, after anæsthesia had been vainly invoked, the prognosis became unfavourable. Renewed inhalation was followed by unforeseen asphyxia; but it would appear that even at that alarming moment the disease was conquered, and the final convalescence initiated and secured.

CASE III.—Jan. 23, 1853, 7 P. M. *Physique*.—H. J., æt. 38; white; Scotch; architect; height, 5 feet 11; weight, 170 pounds; robust; well developed; of good constitution; health uniform, except when disturbed by excesses.

*Present Condition*.—"Has been on a long spree;" very much excited, talkative, facetious; eye wild; limbs tremulous; tongue ditto, and pale; skin warm, rather dry; pulse 80, full; conversation coherent. "Has had no sleep for three nights."

*Treatment*.—Full emesis by warm infusion of hops, followed by tr. opii gtt. 75, when the stomach became quiescent. 10 P. M. Condition the same; effect of opium not perceptible; same dose repeated. 12 P. M. Pupil free; general condition the same.

24th, 9 A. M. Slept but little; appears much as last night; bowels not open. R.—Comp. cath. pil. iij, and an enema of warm water at 3 P. M.; milk punch, Oj. Appetite good. 7 P. M. Bowels freely moved during the

day; is now quite calm, rational, quiet, and disposed to sleep; skin normal. No further treatment.

25th, 5 A. M. Called to patient, who is confused, wild, noisy; insists upon getting up. 7 A. M. Condition the same. Desiring to try sedation by chloroform, ordered R.—Chloroform ℥j, mucil. acaciæ f℥viij, sumat f℥j, sing. horis. 4 P. M. Has taken f℥vj as above, with happy effect; is much more quiet; has been gently restrained in bed, and fed *ad libitum*. 7 P. M. Delirium increasing (often observed at the approach of night); is very restless and noisy; disturbs the house, and requires forcible restraint. Applied the bed-straps, and administered chloroform by inhalation to the approach of stertor, twice, without permanent good effect. Left him at 8 P. M. with a rapid and feeble pulse; prostration and excitement great; having ordered tr. opii gtt. 60, milk punch, Oj, containing s. v. g. f℥iv, to be given as rapidly as possible. 12 P. M. Condition the same; repeated above. 3 A. M. Do. do.

26th, 9 A. M. No improvement perceptible; pupil quite fine; pulse rapid and feeble; excitement great and constant; continued the punch, without the opium. 4 P. M. Has remained screaming, struggling, and convulsed during the day; surface bathed in cold perspiration; pulse exceedingly rapid and feeble; muscular activity still great; face wears an aspect almost cadaveric; has been forced to take two pints of punch, containing 8 oz. of brandy, during the day. There seems no prospect of this spasmodic activity ceasing, except with the total loss of power. Administered chloroform by inhalation; spasmi and laryngismus very great; anaesthesia brief, and followed by no good effect. Repeated. Respiration suddenly *suspended* at the instant when it was becoming stertorous. Having no aid at hand, the pulse was not questioned. Performed artificial respiration by elevating and depressing the ribs with the hands; function rallied in a few moments, becoming gradually stronger and more easy. Left the patient at 7½, entirely quiet, and inclined to sleep. Before inhaling the chloroform, he took tr. opii gtt. 75. 10 P. M. Quiet; has had an hour's sound sleep. 12 P. M. Has slept another hour and a half. Ordered punch freely, and tr. opii gtt. 75, if he should become wakeful.

27th, 9 A. M. Quiet and dozing; has slept four hours; taken a pint of punch and six ounces of brandy since last note; continued treatment.

28th. Sleeps continuously; is otherwise well.

Feb. 2. Discharged from treatment, cured.

Case four was in itself less severe, but tells a very similar story for chloroform.

CASE IV.—Dec. 13, 1852, 7 P. M. *Physique*.—H. L., æt. 60; white; Irish; height, 6 feet; weight, 170 pounds; dark hair and eyes; fair skin; well developed; of strong constitution; bilious-sanguine temperament; health generally good. "Has had yellow fever and phagedenic chancres, but no other sickness which confined him to bed."

*Present condition*.—Drunk. R.—Pulv. ipecac ℥j, to be followed by a full draught of inf. hum. lup.; tr. opii gtt. 70; ale Oss.

14th, A. M. Did not sleep last night; is up, and walked about the ward; eats well; bowels regular; appears strange, but hardly delirious. 6 P. M. As above. R.—Punch Oj, s. v. g. f℥v; tr. opii gtt. 150. 12 P. M. In raving delirium; chloroform by inhalation; anaesthesia and sleep followed.

15th, 10 A. M. Slept three-fourths of an hour after the chloroform, and no more during the night. Repeated stimulants and narcotics of last night. 10 P. M. In the same condition of furious delirium; chloroform by inhala-

tion; spasm and laryngismus during its exhibition; slept  $1\frac{3}{4}$  hours after. 12 P. M. Readministered chloroform; at the point of stertor patient *ceased to breathe*; pulse at wrist imperceptible; cold affusion restored him, and he immediately dropped asleep.

16th. Slept all night, and continues asleep; is well and rational.

March 2. Died of pneumonia.

In the following case, after an hour and three-quarters of futile anæsthesia, to the point of stertor, having in view the issue of the preceding cases, we determined to proceed to the *verge* of asphyxia. This *occurred* suddenly, and by it the disease was as suddenly vanquished. Artificial respiration completely restored life and all its organic functions. The patient slept; and, after eight hours of sleep, rose again to the level of consciousness and reason, perfectly well.

CASE V.—Feb. 9, 1853, 7 P. M. *Physique*.—C. C., æt. 36; white; native of Maine; height, 5 feet 7 in.; weight, 170 pounds; labourer; eyes black; hair do. thick and coarse; well developed; athletic; bilious-sanguine temperament. A drunkard for several years, and for six months past almost constantly intoxicated; drinks brandy.

*Present condition*.—Bewildered, not delirious; tremor of tongue and limbs excessive; skin florid, hot; pulse 100, soft; from ankle to middle third of the thigh, on right side, red, swollen, and hot. R.—Cold water dressing. “Has not vomited since last drink.”  $7\frac{1}{2}$  P. M. R.—Inf. hum. lup. Olij; prompt emesis follows; vomiting persistent.  $11\frac{1}{2}$  P. M. Haust. nigra f 3ij, tr. opii gtt. 75.

10th, 1 A. M. Still continues to vomit at intervals; tr. opii gtt. 75.  $2\frac{1}{2}$  A. M. Tr. opii gtt. 60.  $4\frac{1}{2}$  A. M. Do.  $6\frac{1}{2}$  A. M. Do. 7 A. M. Fell into uneasy sleep, with intervals of waking and delirium; pupil contracted, iris active. 11 A. M. Tr. opii gtt. 60. 3 P. M. Do. 8 P. M. Has slept quietly for two hours; no stimulus has been given; patient has taken a little food; bowels freely open. 10 P. M. Quiet, with intervals of sleep.

11th. Has slept most of the night; inflammation of the skin and cellular tissue of the leg subsiding; is quiet, but not much disposed to sleep. Tr. opii gtt. 60. 10 P. M. Has remained in the same condition all day; is still quiet and rational; tremor of limbs passed away. R.—Tr. opii gtt. 60.

12th, 9 A. M. Seems about well. 12 M. Wild and wandering. 8 P. M. More delirious than at any previous note. Tr. opii gtt. 125.  $9\frac{1}{2}$  P. M. Delirium furious; entire surface bathed in cold perspiration. R.—Brandy freely; tr. opii gtt. 75; patient has taken more than an ounce. 10 P. M. Ordered chloroform 3j; inf. lini f 3vij; sumat f 3j, sing. horis; brandy continued freely.

13th, 6 A. M. More quiet; has not slept; is weaker. R.—30 drops of laudanum and an ounce of brandy every hour; the brandy in egg-nog. 10 A. M. More calm; continued treatment. 3 P. M. Still wandering and watchful; has taken a half pint of brandy and 250 drops of laudanum since morning. R.—Sulph. morphinæ gr. j. 8 P. M. No better; pulse weak and rapid; surface clammy and palé. Chloroform by inhalation to stertor; no permanent sleep or anæsthesia; patient was kept under its influence for an hour and forty-five minutes without benefit, when it was determined to push its effects; after a few seconds of stertor, *respiration was instantly suspended*; pulse 0; artificial respiration for a few moments is followed by quiet and continuous sleep.

14th. Slept uninterruptedly all night.

15th. Sleeps almost continuously; functions all regular.

17th. Discharged from treatment, cured.

Case six is remarkable. Opium, for a time, secured quiet, but could not, even in extreme quantity, procure sleep. The phenomena of anæsthesia were unusual. Asphyxia, in the other cases, was a sudden invasion; in this, it advanced by slow progression for several minutes after the inhalation was suspended. Reanimation was more difficult than before, and the disease was not cured. The conflict of narcosis and delirium tremens, during the following night, was extremely interesting.

CASE VI.—*June 28, 1853.* G. S., æt. 35; white; native of Long Island; height, 5 feet 10; weight, 160 pounds. A sinewy, athletic frame, bilious-nervous temperament; for fourteen years in the naval service; of intemperate habits, indulging periodically in a "spree" once in 3 or 4 months. Has been drinking very freely for four weeks. Is rational, but much excited. Tremor of limbs excessive. Pulse full. Face wears a dark, venous flush.

29*th*. Came in late last night; received no treatment except a small dose of laudanum. This A. M. free emesis and catharsis. Excitement great; delirium furious. Ordered tr. opii gtt. 60; whiskey fʒiv; milk punch, Oj. 9 P. M. Is worse; perfectly uncontrollable. R.—Sulph morph. gr. j. 11 P. M. Chloroform by inhalation, preceded by a draught of brandy, fʒij. Complete anæsthesia secured.

30*th*. Slept half an hour under chloroform, and remained quiet and dozing all night; this morning fell into a sound sleep. 6 P. M. Slept until 5 P. M. Ordered punch freely, sulph. morphia gr. j.

July 1. Slept all night; is rational, and apparently well. July 3. Complains of slight pain and dizziness in head; has no other trace of his late illness. Ordered C. Cups ʒiv, to temples. July 6. Discharged cured.

Oct. 20. Readmitted. Has been drinking freely for a fortnight. Appears much as at previous entry. Functions, except the nervous, not much disturbed. Pulse full, 100. Ordered emesis, with hop-tea, but failed to secure it. It was thought worth while, at that hour, to make another attempt with a different agent. R.—Tr. opii gtt. 120. Repeated at 9 P. M., and at 11, with sp. vin. gall. fʒiv.

27*th*, 9 A. M. Slept very little; is quiet, but busy and wakeful. Determined to procure sleep by opium and stimulus, if possible. 11 P. M. Took 120 gtt. tr. opii at 9 A. M. Repeated at 11, 6, 7, and 9 P. M. Ale and punch freely through the day and evening; condition as in the morning. A little while since became suddenly alarmed; started up and passed rapidly along the scale of excitement and delirium until he became perfectly uncontrollable. Pupils fine. Chloroform by inhalation. Violent spasm, with opisthotonos and epileptiform convulsions during exhibition; the body remaining rigid for a moment or two; consciousness and motion returned together, and immediately. Chloroform again. Spasm less; laryngismus so great that its administration was suspended. Respiration very slow and laboured; *becomes more and more difficult; finally ceases altogether.* Artificial respiration by pressure upon the thorax attempted unsuccessfully for nearly two minutes. Insufflation, followed with pressure, was maintained for some minutes, when the natural breathing was resumed, and continued at seven respirations per minute, stertorous. Slept 20 minutes. When he woke s. v. g. fʒiv was given, and chloroform again administered; little or no spasm of any sort followed. Slept a few moments. Woke and talked incoherently for a short time, then gradually settled into a profound, but uneasy slumber. Respirations 5 per m. Pulse feeble, 130. 1 A. M. As bad as ever. Raves and throws himself about the bed incessantly. Is evidently narcotized, though sleepless; for, in the moments of fitful sleep and exhaustion which alternate

with his paroxysms, he drew but 4, 3, and in one case, 2 inspirations in a minute. During the paroxysm respiration was very rapid; this condition continued until 3 A. M., when he became more quiet. Slept in longer intervals. Was very narrowly watched until 6 A. M., when I left him overcome with sleep. Pupils still contracted.

28th. Sleeps, but is restless. Takes stimulants freely. 6 P. M. Has slept all day. Pupils normal. Pulse 110. Volume and force normal. Is quiet and almost rational. R.—Tr. opii gtt. 60, s. v. g. f 3iv.

29th, A. M. Slept all night. Continued treatment. P. M. Slept until noon, when he dressed himself, went to the carpenter's shop and worked the remainder of the day; apparently as well as usual.

Nov. 5. Discharged, well.

The successful issue of the following case is clearly due to chloroform. Life was saved at its extreme hour.

CASE VII.—April 26, 1853. F. E., æt. 49; white; stage-driver; native of Mass.; height, 5 feet 5; weight, 150. Nervous sanguine temperament. Habitually temperate. Has led a life of hardship and exposure, but has usually been well. This is his "first attack of horrors." "Has been drunk for a week."

*Present condition.*—Has acute bronchitis of no great severity. Bears the marks of constitutional depression, with great nervous excitement. Bowels constipated; stomach irritable, vomiting everything taken. Pulse very feeble; tongue moist, red, and tremulous. Is very delirious, but good natured; the passion of fear predominating.

*Treatment.*—The notes do not mention in what way the bowels were moved; probably by enema. The patient was fed with ice and brandy in small quantities, and tr. opii gtt. 120, at 9 P. M.

27th, 9 A. M. Slept none at all. The brandy and ice have nearly controlled the vomiting, which now occurs at infrequent intervals. Pulse 70, feeble. Tongue heavily furred and dry. Pupils natural. Continued treatment; ordered punch Oj, and tr. opii gtt. 60, to be repeated at 12 M. 4 P. M. Still raves, and struggles with his attendant. Continued punch, freely. R.—Tr. opii gtt. 60. Repeat hourly, until 9 o'clock. 10 P. M. Has taken tr. opii gtt. 360. Find him standing in his bed, trembling with apprehension at the slightest noise. Pupils very fine. Ordered punch, *ad libitum*, to be soothed, not restrained.

28th, A. M. Has not slept. Remained quiet through the night. Calls for whiskey. Is tractable, though wild. Ordered whiskey f 3ij, tr. opii gtt. 60, hourly, until noon, and punch freely. 9 P. M. Is worse. Delirium is now violent. Pulse feeble, uncertain, about 70. Respiration 28; irregular. Ordered s. v. g. f 3iv, tr. opii gtt. 120, to be repeated at 10. 11 P. M. No amendment. Chloroform by inhalation. Anæsthesia transient. Repeated at frequent intervals for two hours. Left him quiet and inclined to sleep.

29th, 8 A. M. Slept two hours. Is now quiet, but very weak; raves incessantly, and says he shall surely die if he cannot have whiskey. Ordered whiskey f 3iv. Pulse 90, feeble. 10 A. M. Has been diligently plied with whiskey and punch. No amendment visible. Chloroform again. Produces spasm, but no sleep. Continued the inhalation one hour. 5 P. M. Appearance unfavourable. Face haggard; eyes protruding; chin tremulous; tongue flabby, pale and moist. Pulse extremely feeble. Gave him ale in full draught, with tr. lupulin f 3iij, and tr. opii gtt. 120. Ordered emp. vesic. 3 × 3, to nape. 7 P. M. No change for the better. Ordered punch, Oj, and whiskey f 3iv. 8

P. M. Tr. opii gtt. 120. In restless and desperate delirium. 9 P. M. Do. Tried to quiet him by soothing talk, with partial success.

30th, 8 A. M. Slept a few moments at a time, in all about one hour, last night. Pulse very feeble; tongue dry. Delirium persists. Ordered stimulants, *ad lib.* 12 M. An hour since, watching his opportunity, escaped from the ward; was brought back with difficulty. 9 P. M. Continued treatment. Patient no better; to be carefully watched, and to take tr. opii gtt. 120, through the night.

May 1, 9 A. M. Evidently sinking. Pulse very feeble; tongue less dry. Delirium constant; is very difficult to manage. Continued stimulus. 12 M. Ordered tr. opii gtt. 120. Pupil normal. To have egg-nog instead of punch: as much as he can be made to take. Pulse can scarcely be felt at wrist. 4 P. M. No improvement. 6 P. M. Face livid, pulse at wrist 0. Heart's action extremely feeble, 70. Can, with difficulty, move in bed. Says he must die. Calls for liquor, and takes sp. vin. gall. f3iv at once. 8 P. M. Pupil contracted. Has taken no opium since noon. Chloroform by inhalation. The heart extremely feeble; *its actions becomes less—less—wavers. Chloroform continued. Respiration 4—8 per minute. Limbs spasmodically convulsed at intervals. Heart's action stronger; pulse returns—fuller—respiration more steady. Patient sleeps—semicomatose.* In five minutes wakes again. Chloroform again administered for 10 minutes, at the end of which comes quiet and profound sleep. Limbs perfectly relaxed. 12, midnight, still asleep.

2d. Is better. Has slept all the time since last note; now is wakened only to take food and brandy.

4th. Has slept constantly, as above.

9th. Is well.

In case eight, we have again chloroform, attended with both asphyxia and syncope. From both the patient was restored. So far as we can trace the influence of the anæsthetic, it seems to have been favourable. The death which followed, was clearly by exhaustion.

CASE VIII.—Sept. 24, 1853, 7 P. M. A. H, white, Irish, æt. 36. Admitted after eight days of continuous debauch. With very little food and no sleep for the last 72 hours. Can answer questions, but sinks back into a low, muttering delirium. Tongue, sordid. Indication: Support and stimulus. Ordered punch (with 3iv s. v. g.) Oj, and tr. opii gtt. 90.

25th. No sleep yet. Condition as above. Ordered punch, &c., as last night, tr. opii gtt. 60, followed by 30 hourly. Continued stimulant and opium through the day. 8 P. M. Called to her by report that "she has had a fit." Is pale, feeble, and very wild. Evidently an epileptiform convulsion; *i. e.* "rum fit." Ordered restraint—brandy *ad libitum*, tr. opii gtt. 60. 10 P. M. No improvement. Gave her tr. opii gtt. 50; s. v. g. 3ij. Commenced the administration of chloroform, which was continued for half an hour—attended with much spasm (subsultus). Anæsthesia transient. Did not think it best to repeat the inhalation. Ordered attention and urgent support, with punch, &c.

26th. No sleep yet, was more quiet. Pulse 120, *feeble*. Ordered tr. camphor f3j; chloroform 3ij; tr. opii 3iv; tr. lupulin 3iij; mix. Tablespoonful once in 2 hours. Brandy continued. 10 P. M. Patient continuing in the same (desperate) condition. Concluded to try inhalation again; as previously it was attended with spasm. Complete anæsthesia secured, but only for ten minutes. Inhalation resumed. After a few inspirations, subsultus and respiration ceased—simultaneously and instantly. Insufflation was promptly

resorted to, and maintained for ten minutes, when the natural function and consciousness were completely restored—but the delirium as high as ever (contrary to previous experience). Continued support and opium.

27th, 9 A. M. Patient has not slept, but has taken some food; her delirium is more quiet and pleasant. Continued punch and opium. 9 A. M. Fiercely delirious again; obliged to tie her down to her bed, where she struggled and fought all night. Punch and opium continued. Did not think best to repeat inhalation of chloroform.

28th. Has beaten herself out. Conscious; rational; dying; dead (5½ A. M.).

*Post-mortem examination made.*—*Viscera:* thoracic and abdominal, healthy. *Brain* nearly normal, neither anæmic nor congested; a little serum under the arachnoid and in the ventricles, hardly more than is usual in death from other causes.

The foregoing pages contain all which we have seen of asphyxia and syncope, after chloroform. Will they not justify the assertion that death from these causes should seldom occur?

In producing artificial respiration, we have not found it necessary to lift the epiglottis and draw forward the tongue, according to the proceeding of M. Ricord. Neither have the galvanic battery and the use of diffusible stimulants been imperatively required.

Finally, if any should expect the suggestion of a scheme for managing the various forms of disease comprehensively classed "*Mania-a-potu*," we would answer, the subject is large and difficult. Science does not yet fully illuminate it. In the field of nervous pathology, speculation has projected theories, observation has gathered facts. Each has done good service. The science of the physician equips and instructs the doctor, the art of the doctor endorses and seals the physician. The mind which commissions all its faculties and reviews all their work, will not rest in any system of rules, which must be in great measure empirical.

The management of these cases should be *par excellence* independent.

With present light upon this point, we shall resort to chloroform *only when other medication fails*, and then we shall not hesitate to seek any measure of its full effect which the occasion may indicate.

## DOMESTIC SUMMARY.

*Case of Cyanosis.*—Dr. Jos. CARSON read the following very interesting report of a case of Cyanosis before the College of Physicians of Philadelphia (Dec. 3, 1856):—

"The subject of the following case having lived, in opposition to so many physical obstacles, during a surprisingly prolonged period of time, I have regarded all the details connected with its history as interesting and worthy of record, and have, therefore, taken considerable pains to note and preserve them.

"S. R. was born, in Philadelphia, January 26, 1836, and, at the time of his birth, was a perfect specimen of cyanosis. He passed through the stages of infancy with no unusual derangement of health, not having developed, however, as his brothers and sister, but remaining puny and contracted in his growth.

"In April, 1842, he was attacked by whooping-cough, which was of great severity in consequence of the difficulty of respiration on the occurrence of the

paroxysm, and attended, from time to time, with profuse hemorrhage from the lungs. From this he recovered slowly, and afterwards, until the winter of 1848, was apparently in good health. I had not occasion to inquire minutely into his condition prior to the attack mentioned, but, at that time, my attention was closely directed towards him, and subsequently, his case was studied attentively. When he was in the best state of physical existence, the following were the features presented: countenance rather dull, except when roused by emotion, with a leaden hue of the skin; expression of the eye clear, but the adnata permeated by deep crimson vessels; lips, gums, and tongue, purple; person small, but slowly increasing from year to year; extremities delicate, with a remarkable enlargement and incurvation (from curvature of the nails) of the ends of the fingers and toes, which were as deeply tinged as the lips and tongue. The chest was narrow and contracted, prominent in front, and evinced a series of phenomena which were constant until his health began to fail, viz., perfect resonance on both sides, before and behind; respiration louder than usual, with no marked signs of pulmonary embarrassment. The impulse of the heart was strong, extending half an inch further on the right side than natural, and seen conspicuously when the chest was exposed; the frequency of beat amounted to eighty per minute. The action of the heart was accompanied with both sounds, the first sound most feeble, and also a peculiar blowing sound, which was perceptible not only when the ear was applied directly over the heart, but at some distance on the sides of the chest. He participated in the active exercises of boys, at which times I noticed that his respiration was much hurried, but he did not appear to suffer, had a good appetite, good spirits, and an active, inquiring mind, which led him to apply himself to his studies, and to excel in such as were presented in succession with advancing age.

"In the year 1843, with the view of determining the effect of position upon the cyanosed condition, Dr. Pepper and myself instituted the following experiments:—

"1. When laid upon his back, with his shoulders moderately elevated, the chest presented some prominence over the cardiac region. Impulse of the heart not strong, beats eighty per minute; dulness on percussion of the cardiac region; pulse regular, but feeble; in the carotids, the same as at the wrist. *Bruit de soufflet* distinct. Respiration twenty per minute. The right hand was elevated for two minutes, when it lost its color; while the left, being pendant, increased in blueness. This trial was now reversed, with the same result.

"2. He was placed upon his left side, and, in thirteen minutes, the lividity in the lips and the hands, which were placed at rest, horizontally, was diminished, but the left side of the face, where it rested on the pillow, was more injected than the other. In fifteen minutes, no greater effect had taken place. He was now made to lie on his right side, and, in fifteen minutes, as much, but no greater, diminution of the blueness had occurred as when upon the left side.

"3. With the view to excite the circulation, we directed him to run up stairs and return. He then presented excessive lividity of the lips, cheeks, and hands, great difficulty of breathing, the heart acting tumultuously, and the pulse rapid and irregular. He was placed on his left side, and, in fifteen minutes, the condition was the same as when this had been practised in the previous experiment. He was again directed to run up stairs, and, on returning with the same symptoms, was laid on his *right side*. In fifteen minutes, the same diminution of colour took place, and calmness occurred as before, when he had been placed upon the left side, but not to a greater extent, or more rapidly.

"4. After inducing augmented blueness by the same exercise, he was laid upon his back, and here, again, it was ascertained that the excessive lividity disappeared with as much rapidity as when placed either on the right or left side.

"During the winter of 1848–9, he had an attack of hemorrhage from the lungs, connected with pneumonia, from which he recovered, and, in the spring, resumed his school duties, but his general health was not so good as previously. and, during the ensuing autumn, when the cold weather set in, he was obliged

to relinquish his studies, becoming a confirmed invalid, and evidently declining.

"April 25, 1850, I visited him, and noted the following symptoms: Much emaciation of the whole frame, with extreme delicacy of the upper and lower extremities; countenance pinched, of a leaden hue; eye dull; lips and tongue of a pale purple; pulse, one hundred and sixteen, quick and thready; respiration thirty, sighing; impulse of the heart decided, but not forcible; sounds of the heart merged into a rough, rasping sound, heard over the whole front of the chest; respiratory murmur louder than natural in the right lung, both anteriorly and posteriorly. In the anterior of the *left* lung, the sounds were masked by that of the heart, but, posteriorly, the middle lobe presented some dulness on percussion, and a distinct, crepitant murmur. Some cough existed, especially at night, with thick, tenacious sputa. He could not remain long in the recumbent posture. Skin cold and moist; tongue coated; appetite poor; bowels regular; complained of erratic pains, and, of late, has suffered from prolapsus ani. Treatment sustaining, and to relieve his sufferings.

"August 1, 1850. From the time before specified, has been gradually failing; the emaciation has become extreme, and the difficulty of breathing has become so oppressive as to preclude repose in the recumbent position; respiration hurried, thirty-five per minute; pulse, quick, and tense; skin cool; mucous membranes becoming dry and foul; extremities swelling. The anterior of the chest presented the rough, blowing sound, with bare perception of the two sounds of the heart. There was dulness on both sides of the chest before and behind, and no respiratory murmur discoverable on either side, but, at the upper parts, tubular sounds, and some crepitation, or submucous râle.

"16th. Patient, after having suffered under almost agonizing pain through the chest, extending to the extremities, with difficulty of respiration, amounting to asphyxia, the lividity of the face and hands becoming extreme, and cold, clammy perspiration covering his whole body, died at 2 P. M.

"*Post-mortem Examination.*—Sixty-eight hours after death an autopsy was made. The body was exceedingly thin, and the blue tinge of the skin very apparent. The examination was made by my friend, Dr. F. W. Sargent, from which I took the following notes:—

"*Chest.*—Upon laying bare the sternum, and removing it, strong adhesions were overcome. On endeavouring to remove the lungs, they were found bound to the sides of the chest by strong membranous connections, the result of pleuritis on both sides, but firmer on the left. *Lungs* filled with tubercles as large as peas, as well as in smaller masses, congested, and in some portions hepatized, the posterior portions of both in a state approximating softening, sinking in water. Pericardium adherent firmly to both right and left lung, containing f3iss of serum. The heart was located with its right edge under the centre of the sternum, the base opposite the second rib, and the apex between the fifth and sixth ribs, length three inches, transverse diameter three inches two lines, much distended with blood, and filled with soft coagula. Auricles distended; *foramen ovale open*, large enough to admit the forefinger (one-half inch in diameter). The *right and left ventricles communicated with each other*, there existing, in fact, but one cavity, the septum being wanting, with the exception of half an inch at the lower part, formed, apparently by a transverse development of the columnæ carneæ. The diameter of the opening between the ventricles was one and seven-eighths inches. The thickness of the walls of the ventricles was very nearly equal—five lines. The substance of the entire organ was flabby. The circumference of the aorta, at its origin, was two and one-sixteenth inches—that of the pulmonary artery was one and five-eighths inches. One of the muscoli papillares of the tricuspid valve had its origin at the posterior wall of the right ventricle lower than usual; valve of the foramen ovale natural; the mitral valves, normal, as well as the semilunar of the aorta and pulmonary artery.

"Liver, large, deeply-coloured; kidneys, firm—apparently natural. The abdominal organs healthy.

"There are several points worthy of note in the history of this case. The subject of it lived exactly fourteen and a half years, and, from the time of his

recovery from hooping-cough in the spring of 1842, until he was attacked by pneumonia in the winter of 1848, appeared to be in good health. The cyanosed condition, although modifying his growth, and producing the peculiar phenomena connected with it, which have been mentioned, did not affect his spirits, or produce hebetude, but, on the contrary, his mind was active and capable of effort. When in the best state of health, as reported in the notes, his respiration presented perfect resonance on both sides, and was louder than usual. Without apparent pulmonary embarrassment, except when in exercise, yet the extreme engorgement to which the lungs could be subjected was shown by the profuse hemorrhage which occurred during the attack of hooping-cough. From the date of the attack of pneumonia, a difficulty in his respiration exhibited itself, becoming more and more serious in proportion to the advancing disease of the pulmonary structure and its accompanying hypostasis, until, under this combination of local circumstances, he succumbed after an unusually prolonged struggle. *Post-mortem* examination revealed a heart without the septum between the ventricles and patulous foramen ovale, with a marked disparity between the openings of the aorta and pulmonary artery, and disease of the lungs of the most serious nature.

"The first aspect of the case from the resemblance to a single heart, might induce the belief that the cyanosis depended upon an equal commingling of venous and arterial blood in the general circulation; this is the causation of the disease which has been adopted by several authorities. Untenable as this supposition has been shown to be by the occurrence of just such malformation in cases where no cyanosis existed, this case does not present this sole aberration; an inequality existed, of a very anomalous character, between the aorta and the pulmonary artery. By referring to the admirable paper of M. Bizot,<sup>1</sup> it will be found that the circumference of the opening of the aorta, at the age of fifteen years, in the male, is twenty-two and three-fourths lines, while the circumference of the opening of the pulmonary artery is twenty-three and three-fourths lines (the French measurements have been reduced to the English). If we compare the measurements of the same openings, in the heart under consideration, with these, it will be seen that, for the aorta, there is given two and one-sixteenth inches, or twenty-four and three-fourths lines, which is two lines more than natural, and for the pulmonary artery there is given one and five-eighths inches, or nineteen and one-half lines, which is less than natural by four and one-fourth lines. In the normal state of the heart, the opening of the pulmonary artery exceeds that of the aorta by a line, while, in this case, it is less than the aorta orifice, the difference between them amounting to five and one-fourth lines, a little less than half an inch. It cannot be doubted, then, that in this slight enlargement on the one side, and decided contraction on the other, there existed a cause of embarrassment to the circulation, which places the case in the category of those produced by pulmonary difficulty. That the heart had difficulty in emptying itself, is apparent from the constant bellows murmur, which increased as disease of the structure of the lungs set in, and from the strong impulse perceptible on inspection, which accompanied the action of the organ. The walls of both ventricles exhibit a departure from the normal thickness, that of the left exceeding the natural measurement by a line, and that of the right augmented three lines; or, contrary to the usual structural arrangement, which gives four lines for the thickness of the wall of the left ventricle, and one and one-half for the right, they were nearly equal, thus more closely conforming to the idea of a single ventricular cavity. Whether this augmented thickness was congenital or acquired, cannot be determined, but, from the length and breadth of the organ corresponding to the standard measurement, we are induced to believe it was the former.

"That difficulty in the pulmonary circulation did exist, although, in the early portion of the history of the case, not sufficiently marked to arrest attention, is clear from the ready occurrence of hemorrhage first under the influence of hooping-cough, and then of pneumonia. The condition of the lungs as

<sup>1</sup> Recherches sur le Cœur et le Système Arteriel chez l'Homme, par J. Bizot (de Genève). Mémoires de la Société Médicale d'Observation, tom. i., Paris.

found, was, in a great measure, the result of fixed hypostatic congestion, on which had engrafted itself the tubercular element.

"We have been induced to report the case as confirmatory of the views entertained by our lamented fellow-member, Dr. Moreton Stillé, and so well sustained in his inaugural thesis on cyanosis, published in the *American Journal of Medical Sciences*."—*Quarterly Summary of the Trans. Coll. Phys. Phila.*, vol. iii. No. 2.

*Supra-Renal Capsules.*—DR. A. CLARK exhibited to the New York Pathological Society (Jan. 28, 1857) some small sections of the supra-renal capsules of a patient who had been under the care of Dr. Taylor, in whom it was thought that no disease of the capsules existed, at the post-mortem, notwithstanding that marked discoloration of the skin that Dr. Taylor has described in his paper on the subject. Dr. Taylor left a small piece for his examination. He began somewhat in the dark, inasmuch as he had never examined these organs microscopically. The capsules have an external investment, from which fibres penetrate into the interior of the organ. The substance in the interior seems to be the proper organ. It is composed of a vast number of granular cells, in most of which there is a nucleus; the cells are of a large size, and some of them elongated; here there can be recognized a nucleus and nucleoli, but not in all of them. Between these cells is a moderate amount of fibrous tissue; the organ is most extraordinarily supplied with nerves. Where the nerves go, he cannot tell, for the piece examined was too short. It seems to him that the nervous element is an important part. The arrangement of the cells is somewhat linear, though not strictly so; there being a certain amount of areolar tissue running between them; this, then, seems to be the structure. He found no opening in any of these cells, but the whole interior is lined with a countless number of extremely minute and slightly yellowish granules, the office of which, he supposes, can be found out when we find what is the office of similar cells in the thyroid glands and spleen. These cells seem to have no communication with each other. In the examination of a section of the supra-renal capsules in a person who died of tuberculous disease, this is the appearance; but, in Dr. Taylor's specimen, there is a world of fatty matter; the cells are full of oil globules, like fatty degeneration in the liver and kidneys; almost all the cells are so laden with this fatty substance, either in the form of globules, or in a crystalline form, that they become opaque. There was also a great quantity of oil spread over the whole field; in other words he takes it to be a fatty degeneration; and so far from being free from disease, he regarded it as very heavily diseased, although its bulk is not increased. The fibres are increased, and it seems probable that there is a double degeneration; an increase in the fibrous element, and afterwards a contraction to compensate for what would have been increased by addition of the oil.—*New York Journ. of Med.*, March, 1857.

*Successful Employment of the "Ready Method in Asphyxia," in a case of Poisoning by Laudanum.*—DR. LEWIS read the following case before the Society of Statistical Medicine (Jan. 12, 1857): "On the 15th of August, 1856, a young man, Mr. J., æt. about 28 years, sound constitution and temperate habits, dined and passed the evening with a friend, in the course of which he was heard to complain of pain in his left side about the region of the heart, for which mustard was applied.

At ten o'clock he left his friend's residence, and made his appearance at his hotel about midnight, and shortly after retired to his room.

In the morning, the door of his room was forcibly opened, and he was found lying upon his back; his respiration stertorous, and not exceeding five or six to the minute; his pulse slow and full; pupils contracted; countenance livid; exhibiting no sign of consciousness. An attempt was made to arouse the patient by dashing cold water upon the face and chest, shaking, applying the salts of ammonia to the nose; but so profound was the coma, that no indication of consciousness could be elicited. Weak brandy and water was next introduced into the mouth, and an attempt made to produce deglutition by

exciting the muscles about the pharynx, when, much to the surprise of the bystanders, his countenance became darker, and all respiration ceased.

The patient was immediately turned upon his face, in order that the fluid might escape; sinapisms were applied over the entire length of the spinal column, also, over the extremities and chest, and artificial respiration commenced without delay.

For a period of five hours and a half, artificial respiration was constantly continued, with an occasional brief interval to enable us to determine whether all normal respiration had ceased. Dry friction was made simultaneously upward along the course of the veins, the beneficial effects of which were apparent.

During the time when artificial respiration was performed, the aspect of the case was very variable. At times the pulse was irregular and thready; at others, it was less frequent, more regular and firm. Equally great were the variations noticed in the respiration. When artificial respiration was for a time discontinued, respiration would continue with some degree of regularity at longer than natural intervals, and then become less frequent, and more irregular until artificial respiration was resumed. Once during the time that artificial respiration was continued, a pint of warm coffee was, by means of the stomach-pump, introduced into the stomach with evident good effect, as indicated by improvement in the pulse and respiration, which, however, was not permanent. A stimulating enema of brandy and water was also administered.

After a lapse of four hours and a half, Dr. Cox saw the patient in consultation with me. At this time, the case was very unpromising. There had been no manifestation of consciousness; the pulse was irregular, frequent, and feeble; the pupils still contracted; the extremities cold and covered with clammy perspiration; and dissolution was apparently so near, that further efforts with hope of success seemed useless.

A flannel cloth saturated with aqua ammoniæ was now applied to the spine, and artificial respiration continued one hour longer, when normal respiration was resumed, and with it, was noticed a gradual return of consciousness. The following morning, his consciousness was perfect, although there was extreme nervous exhaustion, great mental depression, vomiting, loathing of food, etc., from which the patient gradually, but slowly, recovered. In the course of the day, an ounce bottle labelled laudanum, a few drops of which it still contained, was found concealed in the chimney-flue, behind the damper. It was also ascertained that the patient had recently met reverses in business, and was labouring under pecuniary embarrassments, which doubtless induced that species of "moral insanity" that led him to contemplate suicide.

The points of interest in this case are, first, the manner of performing artificial respiration, which was in accordance with the directions of Dr. Marshall Hall, contained in the London *Lancet*, for recovering persons asphyxiated by drowning, viz.: by placing one hand upon the inferior and lateral portion of the chest, and the other upon the superior portion or shoulder, and rolling the patient upon the face, at the same time making moderate pressure, to force the air from the lung; the body was then rolled back, completing about one-third of a circle.<sup>1</sup> This was repeated slowly, sixteen times to the minute.

The second point of interest is the manner of making dry friction of the extremities upwards along the course of the veins, forcing the blood towards the heart, as directed by Dr. Hall, the beneficial effects of which were too apparent to pass unnoticed.

The third point of interest is the length of time during which it was found necessary to keep up artificial respiration, it being full five hours and a half. From the partial examination which I have been able to make, I think it unusual for persons to rally who have been so thoroughly overcharged with narcotic poison, as to create the necessity for the continuance of artificial respiration so long a time. The details of but few cases are recorded, and I have noticed no instance in which artificial respiration was successfully performed for a longer period than four hours.—*New York Journ. Med.*, March, 1857.

<sup>1</sup> See No. of this Journal for July, 1856, p. 224.

*Dislocation of the Head of the Tibia Forward upon the Thigh Bone.*—Prof. Gross records (*N. A. Med.-Chirurg. Rev.*, March, 1857) a case of this uncommon accident. The subject of it was a very large, fat woman who had sustained a severe fall in consequence of a sudden slip of her right foot, which, bending outwards, caused the whole weight of her body to be thrown on the corresponding knee. Dr. G. saw her four hours after the accident. When several fruitless attempts had been made at reduction, “the knee, which was very painful and a good deal swollen, especially on the inside, appeared to be unusually wide from side to side; a circumstance partly due to the tumefaction of the soft parts. The leg was one inch and a half shorter than the opposite one, and in a straight line with the thigh. The patella had sunk behind the head of the tibia, into a sort of hollow, which gave to the front of the joint a flattened appearance. Upon grasping the bone, however, with the thumb and fingers, it was easily drawn forwards, leaving a remarkable vacuity behind, in consequence of its distance from the inferior extremity of the femur. The condyles of the thigh-bone lay in the popliteal space, posterior to the head of the tibia, where they formed a large prominence, more distinct on the inside than on the outside, and situated, as it were, in the upper and back part of the leg, the muscles of which were unusually tense. The head of the tibia lay in front of the condyles, where its outlines could be easily traced with the eye and finger. Above this bone, as already stated, was the patella with its ligament and the tendon of the extensor muscles, forming a broad, thick cord in front of the thigh bone, from which it was removed more than two inches. The leg was easily drawn away from its fellow, but could not be carried inwards, showing that there was extensive rupture of the internal lateral ligament. There was no contusion of the soft parts, nor any discoloration of the integuments.

“Chloroform having been administered, a stout lac was applied to the upper part of the thigh, and confided to an assistant, to make the requisite counter-extension, while extension was made by another assistant grasping the foot, the limb being in the extended position. Placing now my left forearm behind the knee, and requesting the aids to pull gently and steadily, I suddenly, with my right hand, bent the leg backwards, and thus in a few seconds effected the reduction, the bone slipping into its proper situation with a distinct ‘snap.’ The limb being placed in an easy position, cold cloths were applied to the knee, and a grain of morphia administered to allay pain and prevent spasm.”

No untoward symptom appeared after reduction. Rest and antiphlogistic treatment were instituted. In due time passive motion was instituted, and in less than a month the woman was able to walk; but the joint remained weak for a long time.

*Extirpation of the Uterus and its Appendages.*—Dr. JOHN M. BOYD reports (*Southern Journ. of Med. and Phys. Sci.*, Jan. 1857) a case of uterine tumour, in a negress, which came under the care of Dr. William J. Baker, of Knoxville, Tenn. The diagnosis was not well made out, but as there was considerable constitutional disturbance, Dr. B., in consultation with Drs. Rodgers and Sawyers, decided that it ought to be removed.

The patient was placed under the influence of chloroform, and “the operation was commenced by making an incision from the umbilicus to the pubes in the linea alba. So soon as the division of the abdominal walls was complete at the middle portion of the incision, the protuberance of the tumour came out. Upon attempting to lift it, a portion of the tumour was found to extend above the umbilicus, whereupon the incision was extended  $1\frac{1}{2}$  inches higher, avoiding the navel. The upper portion of the tumour could now be raised, and by turning out the bowels, it was discovered to be attached to the sacral and lumbar vertebral regions by extensive and pretty firm adhesion. It was also found that the ovaries and uterus were so involved that separation was quite impossible. Indeed the uterine walls were hypertrophied, and distorted, and had become heterologous, and a portion of the tumour. The ovaries were involved only from contiguity, the peritoneal covering adhering. Now, either the tumour must be returned, be but partially extirpated, or womb, ovaries and tumour, brought away.

"After a few moments' deliberation it was determined to excise the whole. Accordingly the serous adhesions were torn or dissected up. The ligaments were severed until the mass was attached only by the vagina as a pedicle. A needle, armed with a ligature, was now passed through the cervix, and the lateral halves constricted tightly. The cervix was divided immediately above the ligature, and the mass removed.

The pedicle was brought to the lowest point of incision and secured. The wound was closed by the interrupted suture.

"There was probably left of the neck and cervix from the os to the ligature half an inch—the section being made at a point just above the juncture of the vaginal walls to the neck. During the progress of the operation, but one artery required ligation, viz., the spermatic of the left, when the broad ligament was cut. There was no hemorrhage from that of the right side. The venous hemorrhage probably amounted altogether to 3x. The patient bore chloroform remarkably well. The tumour and parts excised, weighed 46 ounces avoirdupois. It is of a fibrous nature, but its character will be more definitely given, when it shall have been submitted to microscopic examination."

The operation was performed on the 13th of Nov., the pedical ligatures came away on the 16th day, and it is stated in the March Number of the *Journal* quoted that the girl had entirely recovered and was able to return to her accustomed work.

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*Phytolacca Decandra* in *Granular Conjunctiva*.—Dr. C. S. FENNER, of Memphis, Tenn., highly extols (*N. A. Med.-Chirurg. Rev.*, January, 1857) the efficacy of the phytolacca in preventing relapses in inflammation of granular lids:—

"Regarding," he says, "these exacerbations, accompanied with circumorbital pain, soreness in the periosteum and scalp, as of rheumatic origin, about two years ago I was induced to give a trial to the phytolacca decandra or poke, from its well-known efficacy in relieving rheumatic affections, and the result has far exceeded my most sanguine expectations. With the aid of this remedy, I have been enabled to effectually cure cases of granular conjunctiva, that, without it, would have resisted all my efforts; indeed, with me it has proved almost a specific for the exacerbations attending this complaint. Patients fully under the influence of the phytolacca, often expose themselves and take a severe cold without affecting the eyes in the least. I make use of the root, and prescribe it either in the form of a very strong decoction, or tincture; the former I prefer, as less liable to nauseate or act on the bowels. I direct a half peck of the root cut in small pieces, to be put into a kettle, to which is added four quarts of water, to be boiled down to one quart and strained. Of this a wineglassful may be taken every two or three hours. Some patients require more than others. The dose should be sufficient to produce a fulness of the temples and head a few minutes after it is taken, and patients soon learn to know the quantity required to produce this effect. Besides the fulness of the head, it causes flushing of the face, a general glow and perspiration over the entire surface of the body, often fulness of the stomach, and occasionally nausea. After having been used four or five days, it usually acts on the bowels, when an opiate should be administered as occasion may require, and the quantity of the decoction diminished for a time, to be increased, however, on every unfavourable change of the weather, or the slightest symptom of a relapse. I have not yet seen a severe recurrence of acute inflammation in this disease, where the patient was kept fully under the influence of the phytolacca. If there is ulceration of the cornea, or much opacity, I usually prescribe a pill composed of one grain of calomel and the fourth of a grain of opium, to be taken every night. I know of no remedy so efficacious in promoting absorption of lymph deposited in the texture of the cornea as mercury; either in the form of calomel or blue mass, or, if these remedies are found to act on the salivary glands, I use the corrosive chloride, combined with the compound syrup of sarsaparilla. The latter form of mercury rarely salivates; it may be continued for months, and is particularly adapted to strumous cases attended with severe photophobia. If the system has been much reduced, and is in an anæmic condition, the preparations of iron will be of service.

*Ligature of the External Iliac for Aneurism of Femoral Artery.*—This operation has recently been successfully performed by Dr. MERCIER, of New Orleans. —*New Orleans Med. & Surg. Journal*, Jan., 1857.

*Amputation at the Hip-joint.*—Dr. GEO. C. BLACKMAN records (*Western Lancet*, Jan., 1857) a case of osteo-cephaloma of the femur, involving two-thirds of the shaft of the bone, in which he performed amputation at the hip-joint. At the date of the report, fifty-four weeks after the operation, there were two or three fistulous openings, probably communicating with the cotyloid cavity; but no appearance, *as yet*, of a return of the disease.

*Ovariectomy.*—Dr. NELSON WINTON records (*Buffalo Medical Journal*, Dec., 1856) a case of ovarian tumour, successfully removed by extensive abdominal section, with recovery of the patient.

Another case, also successful, is recorded (*Peninsular Journ. of Med.*, Oct., 1856) by Dr. EDWARD BATWELL, of Detroit.

Dr. FRIES reported to the Cincinnati Medical Society (Nov. 10, 1856), a case of ovarian tumour in which he had made the small incision through the abdominal parietes, tapped and then withdrew the sac. The woman was rapidly convalescing. —*Western Lancet*, Jan., 1857.

*Montgomery on the Signs and Symptoms of Pregnancy.*—We are pleased to announce the publication, by Messrs. Blanchard & Lea, of this valuable work, of which we gave a review in our number for January last. It is but justice to the publishers to notice the elegant style in which they have brought out this edition. Whether we regard the paper, press-work, or illustrations, we know of no medical work published in this country which excels it; it is truly an "*édition de luxe*." The coloured plates of the ovaries and corpora lutea are in the highest style of the art, and do great credit to the lithographic establishment of Mr. T. Sinclair.

OBITUARY RECORD.—It is with profound regret that we record, on our pages, the death of our friend, Dr. ELISHA KENT KANE, whose indefatigable zeal for the advancement of science, and whose courage, devotion, energy, and self-sacrificing labours in the cause of philanthropy have secured for himself a world-wide and enduring reputation, reflected lustre on his profession, and won such honour for his country that the whole nation have given expression to their grief at his early loss, and united to do honour to his memory. Dr. K. closed his short but brilliant earthly career at Havana, on the 16th of February last, at the early age of 34 years.

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GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA,

MARCH, 1857.

At a Public Commencement, held on the 7th of March, 1857, the degree of DOCTOR OF MEDICINE was conferred on the following gentlemen by the HON. J. B. SUTHERLAND, President of the Institution; after which a Charge to the Graduates was delivered by PROFESSOR JOHN K. MITCHELL.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Aikins, M. H.	Canada West.	Face Presentations.
Ashton, Arthur	Virginia.	Delirium Tremens.
Baldrige, Alexander S.	Tennessee.	Alcohol
Banks, John W.	Missouri.	Toxicology.
Barbre, Jesse (M. D.)	Illinois.	Milk-sickness.
Barclay, Robert G.	Virginia.	{ State of Medical Science in Syria and Arabia.
Batthey, Robert	Georgia.	Melia Azedarach.
Bauknight, Walter J.	South Carolina.	Intermittent Fever.
Berrien, J. Hunter	Georgia.	Yellow Fever.
Berry, George W.	Maryland.	Action of the Female in Generation.
Bibighaus, T. B.	Pennsylvania.	Scarlatina.
Blackwell, George W.	Mississippi.	Remittent Fever.
Bomgardner, John E.	Pennsylvania.	Emetics.
Bowen, James H.	Georgia.	Cinchona.
Bowyer, James H.	Virginia.	Uric Acid Lithiasis.
Boyd, Richard, Jr.	Virginia.	Typhoid Fever.
Bracey, John R.	Virginia.	Acute Peritonitis.
Brunson, Jesse A.	Tennessee.	Craniotomy.
Bryan, William S.	North Carolina.	Gunshot Wounds.
Buckner, Baldwin M.	Virginia.	Erysipelas.
Buhôt, William I.	Barbadoes.	Death.
Butts, James J.	Georgia.	Intermittent Fever.
Camp, J. G.	North Carolina.	Acute Inflammation of the Brain.
Carleton, George E.	Georgia.	Diet in Disease.
Castlen, F. G.	Georgia.	Enteritis.
Chase, William B.	Vermont.	{ Fracture of the Neck of the Thigh Bone within the Capsular Ligament.
Chrisman, W. L.	Pennsylvania.	{ Influence of Atmospheric Air on Animal Life.
Clark, Marcus A.	Virginia.	Amenorrhœa.
Cline, Philip M.	Virginia.	{ Symptoms and Treatment of Dysen- tery.
Coleman, John S.	Georgia.	Intermittent Fever.
Collins, William Thomas	Delaware.	{ Medicine; its early History and Su- perstitions.
Coover, John B.	Pennsylvania.	Empiricism.
Coover, William H.	Ohio.	Management of Natural Labor.
Couch, W. B.	Georgia.	Lobelia.
Couch, William S.	Virginia.	Apoplexy.
Crawford, William H.	Pennsylvania.	Gunshot Wounds.
Credille, William H.	Georgia.	Anatomy of the Stomach.
Curtis, Humphrey H., Jr.	Virginia.	Concussion of the Brain.
Dana, Robert S.	Pennsylvania.	Intermittent Fever.
Daniel, A. B.	Georgia.	Typhoid Fever.
De Choudens, Joseph F.	Corsica.	Diagnosis of Uterine Pregnancy.
Delano, Marcus F.	Massachusetts.	Physiology of Digestion.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Delaplane, James B.	Maryland.	Entero-mesenteric Fever.
Dewberry, John H.	Georgia.	Intermittent Fever.
De Witt, Manning F.	Pennsylvania.	{ Mutual Relation between Pulmonary and Cardiac Diseases.
Dickson, John	Pennsylvania.	{ Treatment of Aneurism by Compression.
Dinzey, John K.	West Indies.	Diagnosis.
Drye, William S.	Kentucky.	The Doctor of the Day.
Duval, C. A.	Mississippi.	Pneumonia.
Earl, J. Madison	North Carolina.	Erysipelas.
Echols, Edward D. J.	Alabama.	Tetanus.
Edmonds, Matthew W.	New Jersey.	Phthisis Pulmonalis.
Elsberg, Louis	Pennsylvania.	{ Sources of Abnormal Conditions of the Fœtus.
Evans, Charles H.	Ohio.	Pertussis.
Farell, William	Georgia.	Mumps.
Fleming, Robert A.	Alabama.	Injuries of Arteries.
Flint, Austin, Jr.	New York.	{ Phenomena of the Capillary Circulation.
Fordham, John F.	Georgia.	Rubeola.
Foster, A. R.	Alabama.	Abdominal Dropsy.
Foster, David L.	Mississippi.	Angioleucitis.
Fowler, A. S. (M. D.)	Georgia.	Intermittent Fever.
Freeze, Peter H.	Pennsylvania.	Intermittent Fever.
Fruit, John C.	Pennsylvania.	Fractures.
Frye, A. S.	Maine.	Amputation of the Thigh.
Fuller, Daniel	Pennsylvania.	Nature of Inflammation.
Gibbon, William H.	New Jersey.	{ Eclampsia gravidarum et parturientium.
Gill, Henry Z.	Ohio.	Man.
Gillespie, Zadock R.	Tennessee.	Counter-irritation.
Gilliam, J. P.	Virginia.	Narcotics.
Godfrey, J. T.	Florida.	Mental Influence.
Gray, Joseph	New York.	Pleural Dropsy.
Gross, Samuel W.	Pennsylvania.	Iodine considered as a Surgical Agent.
Halsy, Dennis J.	Kentucky.	Puerperal Peritonitis.
Hall, Samuel H.	Connecticut.	Puerperal Peritonitis.
Hambrick, Joseph M.	Georgia.	Puerperal Fever.
Hamilton, Robert S.	Virginia.	Anæsthetics.
Hanger, John M.	Virginia.	Pneumonia.
Harrison, Eugene B.	Ohio.	{ Epidemic Pernicious Fever in N. W. Ohio, in 1855.
Hartman, H. B.	Louisiana.	Gonorrhœa.
Hartman, Samuel B.	Ohio.	Retroversio Uteri.
Herndon, Thomas	Virginia.	Circulation of the Blood.
Hill, J. Ward	South Carolina.	Opium.
Hirons, Robert S. Warren	Delaware.	Entero-mesenteric Fever.
Hoke, Augustus D.	South Carolina.	Congestive Fever.
Holland, Thomas Walter	Tennessee.	Typhoid Fever.
Hollinsworth, Edwin F.	North Carolina.	Colitis.
Holman, William A.	Virginia.	Opium.
Holt, William F.	Georgia.	Entero-mesenteric Fever.
Houston, Joseph Willis	Pennsylvania.	Erysipelas.
Howard, Robert G.	Georgia.	The Ovaries.
Howerton, William H.	North Carolina.	Gonorrhœa.
Hunt, John T.	North Carolina.	Miasmatic Remittent Fever.
Hursh, George R.	Pennsylvania.	{ The Anatomy and Physiology of the Eye.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Jennings, William K.	Virginia.	Yellow Fever.
Johns, A. Benning, Jr.	North Carolina.	Diseases of Rockingham Co., N. C.
Johnson, Jesse W.	Missouri.	Typhoid Fever.
Johnson, William L.	Kentucky.	{ Colo-rectitis as it prevailed in Ken- tucky, in 1853-4-5.
Joiner, Charles J.	Alabama.	Signs of Pregnancy.
Jones, Daniel Chandler	Georgia.	Physiology of Digestion.
Jordan, J. C.	North Carolina.	Hysteria.
Jordan, M. D. L.	Tennessee.	Fœtal Circulation.
Juett, David P.	Kentucky.	Dysentery.
Kelly, Hiram N.	Pennsylvania.	Parturition.
Kerr, Harvey	Indiana.	Acute Pneumonia.
Knipe, Francis M.	Pennsylvania.	Hernia.
Lane, John T.	Georgia.	Typhoid Fever of Middle Georgia.
Lennon, John	Canada West.	Concussion of the Brain.
Lewis, George R.	Pennsylvania.	Pathology of Pneumonia.
Lewis, Thomas M.	Virginia.	Rubeola.
Lyman, J. Baldwin	Massachusetts.	The Ophthalmoscope and its Uses.
Mabry, Lucien L.	South Carolina.	Puberty.
Marr, Charles	Pennsylvania.	Scarlatina.
Maxwell, J. Marcellus	Georgia.	Circulation of the Blood.
McAden, John H.	North Carolina.	Diabetes Mellitus.
McCleery, James P.	Pennsylvania.	Homœopathy.
McConnell, William H.	Pennsylvania.	Mental Tonics.
McCulloch, Thomas J.	Virginia.	{ Epidemic Dysentery as it prevailed in Washington Co., Va., in 1856.
McFall, David M.	Indiana.	Intermittent Fever.
McKelvey, Charles E.	Illinois.	Malaria.
McLeod, James P.	Alabama.	Typhus Fever.
Miller, Thomas M.	Virginia.	{ Typhoid Fever as it occurred in the Valley of Virginia.
Miller, William H.	Virginia.	Typhoid Fever.
Mitchell, Benjamin W.	Missouri.	Hereditary Predisposition to Disease.
Morey, Andrew C.	New York.	Mania a Potu.
Morrison, N. B.	Maryland.	Acute Colo-rectitis.
Nagle, H. M.	Pennsylvania.	Typhoid Fever.
Nesbit, Joseph A.	Indiana.	Epidemic Dysentery.
Newland, J. Oscar	Kentucky.	Phthisis Pulmonalis.
Nisbet, William M.	Alabama.	Therapeutic Effect of Cold Water.
Nobles, William H.	Alabama.	Scarlatina.
Nowlin, John B. W.	Virginia.	Retentio Alvina.
Orton, Henry	Canada West.	Fistula in Ano.
Parker, George W.	North Carolina.	Intermittent Fever.
Parker, John R.	Virginia.	Intermittent Fever.
Pattishall, Daniel	Georgia.	Acute Dysentery.
Payne, Edward D.	Pennsylvania.	Scarlatina.
Payne, R. L.	North Carolina.	{ Propter solum uterum mulier est quod est.
Peake, Humphrey	Arkansas.	Pneumonia.
Pearce, James F.	South Carolina.	Acute Rheumatism.
Peebles, J. H.	Mississippi.	{ The Influence of Climate on the Phy- sical and Intellectual Character of Man.
Pepper, James R.	Virginia.	{ Physiological Development of the Embryo.
Pepper, John G.	Virginia.	Digestion.
Perchment, John, Jr.	Pennsylvania.	Dynamic Power.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Phillips, W. E. T.	Kentucky.	Asiatic Cholera.
Plummer, Orlando P. S.	Illinois.	Intermittent Fever.
Poole, R. D'Orsay	Maryland.	{ The Anatomico-physiological Peculiarities of the Genital Organs of Woman.
Price, William B.	Illinois.	
Prince, Thomas H.	Tennessee.	{ Valvular Affections of the Heart. The Physician and his Responsibilities.
Raine, John R.	Virginia.	
Ravenscraft, William H.	Virginia.	Remittent Fever.
Redden, Joseph W.	Delaware.	Cholera Infantum.
Reynolds, Samuel K.	Pennsylvania.	{ Mutual Relation between the Heart and Lungs.
Rhoads, Reuben B.	Pennsylvania.	
Riegel, Henry H.	Pennsylvania.	Secretion of Milk.
Rieger, Francis A. A. T. (M.D.)	Missouri.	Fractures of the Clavicle.
Rogers, J. W.	Tennessee.	Scarlatina.
Roy, Gustavus G.	Virginia.	Oblique Inguinal Hernia.
Rush, David G.	Pennsylvania.	Evidences of Pregnancy.
Ruth, Daniel G.	Pennsylvania.	Physiology of Digestion.
Sample, Samuel R.	Pennsylvania.	Inflammation.
Sanderson, E. L.	Alabama.	Enteromeresenteric Fever.
Sandford, James	Virginia.	Acute Pneumonitis.
Sandford, John W., Jr.	North Carolina.	Menstruation.
Scales, Samuel W.	Tennessee.	Chloroform.
Scott, George H.	Illinois.	Valvular Disease of the Heart.
Scull, Benjamin F.	Arkansas.	Puerperal Fever.
Sealy, James E.	Tennessee.	{ Anatomy and Physiology of the Uterus.
Seawell, William T.	Virginia.	
Shannon, T. Jefferson, (M. D.)	Ohio.	Suspended Fœtal Animation.
Sharp, Samuel C., Jr.	Pennsylvania.	Erysipelas.
Shropshire, James W.	Georgia.	Gonorrhœa.
Simpson, George W.	Tennessee.	Hydrocele.
Smith, Jacob	Canada West.	Acute Rheumatism.
Smith, W. R.	Georgia.	Tonsillitis.
Solliday, Edwin S.	Ohio.	Parturition.
Spencer, Charles W.	Missouri.	Typhoid Fever.
Spratt, John B.	Kentucky.	Scarlatina.
Stark, Daniel P.	Kentucky.	The Language of the Physician.
Stark, Edwin A.	Missouri.	Menstruation.
Stell, W. W.	Texas.	Menstruation.
Stephenson, Marcus P.	New York.	Anæmia.
Stokes, James S.	Mississippi.	Malarious Poison.
Strudwick, Edmund	North Carolina.	Typhoid Fever.
Summers, Rowland T.	Indiana.	Typhoid Fever.
Swartz, Joseph	Pennsylvania.	Concussion of the Brain.
Swiler, William E.	Pennsylvania.	Dysentery.
Thomas, Charles E.	New Jersey.	Psychologia.
Thompson, Stephen B.	Pennsylvania.	Diervilla Tournefortii.
Thruston, R. Turnbull	South Carolina.	Typhus Fever.
Tigner, Leander	Georgia.	Acute Gastritis.
Trist, H. B.	Pennsylvania.	Scurvy.
Upton, William A.	Tennessee.	{ Epidemic Typhoid Fever of East Tennessee, in 1856.
Van Artsdalen, Franklin V.	Pennsylvania.	
Vineyard, John H.	Mississippi.	Dysentery.
		Bilious Remittent Fever.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Walton, John J.	Georgia.	Typhoid Fever.
Ware, George G.	Tennessee.	Inflammation.
Watlington, Thomas J.	North Carolina.	Entero-mesenteric Fever.
Weaver, Junius W.	Virginia.	Physiology of Digestion.
Wilburn, John C.	Alabama.	Emansio Mensium.
Williams, K.	Mississippi.	Acute Synovitis.
Williams, William A.	South Carolina.	Cinchona.
Wilson, James E.	Virginia.	Dyspepsia.
Windsor, Norman	Virginia.	Ascites.
Witherspoon, H. F. (M. D.)	Texas.	Scarlet Fever.
Wolf, Jacob G. (M. D.)	Indiana.	Pernicious Intermittent Neuralgia.
Wolfe, William E.	Delaware.	Pleuro-pneumonia Biliosa.
Wood, Marcus M.	New York.	Menstruation.
Wooding, Nathaniel H.	Virginia.	Respiration.
Wright, Mansur H.	Indiana.	Vaccination.
Yarbrough, Wiley	Texas.	Intermittent Fever.
Yerkes, John D.	Pennsylvania.	Physiology of Absorption.
Young, Alexander	New Jersey.	Typhoid Fever.

Total 212.

ROBLEY DUNGLISON, *Dean*.

## PENNSYLVANIA COLLEGE—MEDICAL DEPARTMENT.

SESSION OF 1856-'57.

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ALFRED STILLE, M. D.,	Professor of Theory and Practice of Medicine.
JOHN NEILL, M. D.,	Professor of Surgery.
T. G. RICHARDSON, M. D.,	Professor of Special and Surgical Anatomy.
JOHN J. REESE, M. D.,	Professor of Medical Chemistry.
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H. W. DE SAUSSURE FORD, M. D.,	Demonstrator of Anatomy.

Clinical Instruction will be given by Professors BIDDLE and NEILL, at the *Philadelphia Hospital, Blockley*, during the entire term of the session, in conjunction with other members of the Medical Board of the Hospital. The Students of Pennsylvania College—*both first course and second course*—will be furnished *gratuitously* with the ticket to the Philadelphia Hospital; second-course Students have the option of receiving gratuitously the ticket to the Pennsylvania Hospital. A Clinic will also be held at the College, every Wednesday and Saturday morning throughout the session.

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Preliminary Lectures will be delivered during the fortnight preceding the opening of the session.

JOHN J. REESE, M. D., *Registrar*,  
No. 342 Walnut Street, Philadelphia.

July, 1856.—4t.

## UNIVERSITY OF LOUISIANA—MEDICAL DEPARTMENT.

The Annual Course of Lectures in this department will commence on Monday, November 17, 1856, and will terminate in the ensuing March.

JAMES JONES, M. D.,	Professor of Practice of Medicine.
J. L. RIDDLE, M. D.,	Professor of Chemistry.
WARREN STONE, M. D.,	Professor of Surgery.
A. H. CENAS, M. D.,	Professor of Obstetrics.
GUSTAVUS A. NOTT, M. D.,	Professor of Materia Medica.
J. C. P. WEDERSTRANDT, M. D.,	Professor of Anatomy.
THOMAS HUNT, M. D.,	Professor of Physiology and Pathology.
GILBERT S. VANCE, M. D.,	Demonstrator of Anatomy.

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THOMAS HUNT, M. D., *Dean.*

The Administrators of the Charity Hospital elect annually, in April, fourteen Resident Students, who are maintained by the Institution.

## MEDICAL COLLEGE OF VIRGINIA.

SESSION OF 1857-'58.

The regular Course of Lectures will commence on the 1st of October, and continue until the 1st of March.

CHARLES BELL GIBSON, M. D.,	Professor of Surgery and Surgical Anatomy.
DAVID H. TUCKER, M. D.,	Professor of Theory and Practice of Medicine.
MARTIN P. SCOTT, M. D.,	Professor of Chemistry and Pharmacy.
BEVERLEY R. WELLFORD, M. D.,	Professor of Materia Medica and Therapeutics.
ARTHUR E. PETICOLAS, M. D.,	Professor of Anatomy.
LEVIN S. JOYNES, M. D.,	Professor of Institutes of Medicine and Medical Jurisprudence.
JAMES H. CONWAY, M. D.	Professor of Obstetrics and Diseases of Women and Children.
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L. S. JOYNES, M. D.,  
*Dean of the Faculty.*

April, 1857.—3t.







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